Search for evidence, gather clues, and discover how science and math can help solve a mystery with Science Nspired Forensics activities by Texas Instruments. From determining time of death to analyzing handwriting, each of these free 12 case file activities has a story your students must understand in order to solve the mystery. The use of sensors, data collection, and data analysis will give your students a firsthand look at how detectives and forensic scientists use science to solve real-life crimes.
The Forensic Teacher Magazine

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This issue we have not one main theme, but two. The first is odontology and how teeth are studied and used as evidence in the classroom and in the courtroom. We’ve got an interview with Dr. Lowell Levine, one of the predominant forensic dentists in the world. We’ve also got a couple labs your students can do to familiarize themselves with teeth and the value of this kind of evidence in not only solving crimes, but in identifying mass casualty victims. One is a straight-forward lab you’ll appreciate if you’ve never done odontology in your classroom. The other turns up the heat on the study of teeth by harnessing the power of vampires to engage students. Yes, even the undead have dental issues. The other focus of this issue is a topic not often addressed in high school or college classrooms: forensic accounting.

If some of you rolled your eyes when I mentioned vampires, I can see the rest of you rolling your orbs at the mention of accounting. Numbers? Columns? Math without bloodspatter? No, I’m not kidding, and your students will like it more than you think.

When someone embezzles, skims, or defrauds a company there’s always clues left behind, especially if it’s an inside job. Embezzlement is a stupid crime because when it’s detected it’s usually simple to figure out who had opportunity, means, and motive. Forensic accountants are often portrayed on TV as boring, but it was the balding, little guy’s work in The Untouchables who put Al Capone behind bars, something the combined might of the Department of Justice, Kevin Costner, and Sean Connelly were unable to do.

Please write us and tell us how you used the various pieces in your classroom. Please write if there’s something you’d like to see on our pages, and don’t hesitate if you have a different way of approaching a topic, lab, or lesson. We’re at admin@theforensicteacher.com.

Enjoy!

Dr. Mark Feil
Criminals Use 3D Printers to Create Illegal Objects

Microscope on the Cheap

When one of the strangest serial killers of recent American history was arrested in 1978, investigators found the remains of 33 young men buried in the crawlspace under the floorboards of his Hollywood home. Just 30 years earlier, when cold case detectives were unable to build a DNA profile of a victim dropped off at a Chicago hospital in 1947, they were characterized as drug addicts or gay men, and detectives hope the stigma attached to this issue may have held back the story of one of America's worst serial killers, Samuel Watson of Chicago.

James Paulk.

Paulk who worked for the DA, a man named Pheobe Putney, a local hospital with vast financial and political connections. The trouble started when Rehberg appealed to the federal bench in Atlanta. The court ruled 25 years ago that for abuse of power. Unfortunately for Rehberg against the DA's office and Paulk the issue remained: a suit brought by Rehberg against the DA's office and Paulk with insurance. Further, it was very aggrieved to secure two more, both of which hospital dropped its lawsuit, but one legal damages for actions, regardless of if the hospital to collect on debts. In January 2012 the US Supreme Court must now decide if what jury count as trial-related or not?

The court threw it out. It was for abuse of power. Unfortunately for Rehberg against the DA's office and Paulk, the hospital to collect on debts. In January 2012 the US Supreme Court must now decide if what jury count as trial-related or not?

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Book Reviews


If you find the forensic accounting activities in this issue of The Forensic Teacher Magazine interesting you’ll probably love this book. It puts into plain language the most common fraud schemes, tips and techniques for spotting fraud, real life examples, and even job prospects with the IRS and FBI.

The first part of the book explains what forensic accounting is, why it’s needed, what you’ll need to make a career of the field, how prevalent fraud is, and who the victims are. Readers will also learn about the most common frauds against businesses, by business, by individuals against other individuals, businesses, and the government. It also features a chapter about the value of forensic accounting when no fraud is involved, such as in divorces, bankruptcies, or malpractice.

The next section of the book explores occupational fraud, i.e. fraud on the job. Examples include employee theft of inventory, receivables, or revenues. One chapter is devoted to recognizing revenue fraud like fictitious sales, bill and hold, and multiple deliveries. It even goes into detail about securities fraud perpetrated by dishonest stock brokers.

Following that section is one on fraud on individuals. It details how to search for hidden assets like when a mansion is put into a grandchild’s name so the IRS can’t touch it, the issue of hidden income, or scams that prey on the elderly. These can take the form of getting grandma to change her will, buy life insurance she doesn’t need, stealing Uncle Leo’s house, or capitalizing on someone’s hearing loss over the telephone to get them to buy an allegedly high return bond. Real estate fraud is also explored in this section via repair schemes, leasing scams, mortgage fraud, and how criminals will try to structure a deal in their favor.

Investigating fraud is the focus of the next section and the reader will learn how to plan strategy, what documents they’ll need, how to gather evidence, how to trace the flow of money, and how to obtain records, both paper and electronic. You’ll also find out what to do with what you find out, and even how to prepare for trial if it goes that far. The section ends with a look at a number of real government fraud cases.

Whether you’re the owner of a small or large business the next section is tailored for you. It discusses ways to prevent fraud, strategies that work, and how to keep employees honest and happy. It also discusses how to use technology to prevent fraud and ranges from secure passwords to phishing schemes to firewalls.

And the last section is one of the best for any educator who doesn’t know if they have the time or interest level to go through the entire book. If you’re one of these people, but you like the idea of ratcheting up student detective skills you’re in for a treat. You’ll read about the top ten entertaining portrayals of fraud, ten fairly common, and unsuspected frauds, and ten truly strange fraud stories. This section of

Be careful picking up this book because you’ll have a hard time putting it down. This isn’t a memoir by a famous pathologist, nor is it a collection of tabloid stories. Rather, this book contains full length, actual autopsy reports for a series of celebrities. You get everything in each report: measurements, diagrams, tox results, and more. Featured in its pages are presidents Abraham Lincoln, James A. Garfield, William McKinley, and John F. Kennedy. There’s also Robert F. Kennedy, Martin Luther King Jr., Malcolm X, Leo Ryan, Adolf Hitler, Vladimir Lenin, and Simon Bolivar. Celebrities who’ve gone under the knife include Marilyn Monroe, Whitney Houston, Buddy Holly, Richie Valens, Michael Jackson, Brittany Murphy, Notorious B.I.G., River Phoenix, Sharon Tate, Billy Mays, Anna Nicole Smith, Dale Earnhardt, Janis Joplin, Andy Irons, David Foster Wallace, and Ludwig van Beethoven. And, of course, you have criminals: Bonnie Parker, Clyde Barrow, Jack Ruby, Charles Whitman (University of Texas Shooter), Eric Harris and Dylan Klebold (the Columbine shooters), John Wilkes Booth, Jim Jones, Maria S. Katsaris (one of Jones’s victims), Lee Harvey Oswald, John Dillinger, and some of Jack the Ripper’s victims.

Besides the obvious fascination factor, the first thing I thought of looking through this book was to make copies of a famous person’s report for my students, but obliterate the name of the individual. Their job would be to read the report and see if they could guess who the celebrity was. I might even give them a list of possibilities in case their knowledge of history is a dead-end before the year they turned ten.

The autopsies reports in this book are not retyped or homogenized, as evidenced by the different fonts each medical examiner’s office uses. There’s also a number of mundane surprises you’ll glean from the reports, things like tattoos, scars, and drug habits you never suspected.

As a classroom aide, lesson facilitator, or casual reading this is a fascinating book as you get the final word on the individuals named above. If you don’t buy it for your students buy it for yourself. Remember, Christmas is coming.

By Enrico Pelazzo
**Mini-Mystery**

**THE CASE OF THE FRENCH PROFESSOR**

“The nine-year-old mind at work!” Walker proudly exclaimed. The inspector handed an inscribed certificate across his desk to Stanwick.

“Well, now!” said Stanwick. The amateur logician examined the document carefully. “Second prize in the school checkers tournament. Good for Peter!”

“He’s a fiend for board games,” said Peter Walker’s father. “Especially checkers. He and his brother also like to team up for Duopoly. I think he’s about ready to learn chess.”

“An important rite of passage,” laughed Stanwick as he handed back the certificate. “So what has the almost-champ’s dad been busy with this week?”

“I just got back from questioning two suspects in a mugging. A visiting Frenchman was hit with a club and robbed. Did you see this in today’s paper?” Walker handed across a folded section of newspaper.

Stanwick took it and read:

**FRENCH PROFESSOR ATTACKED**

“Olivier Presmonger, a professor at the University of Lyon, was attacked and robbed last evening about nine-thirty as he walked from the French cultural center on Fremont Street, where he had just concluded a lecture. His watch and his wallet, which contained both European and American currency, were taken. Presmonger is recovering at Royston General. Police are investigating.”

“That part of Fremont Street is a dangerous neighborhood,” Walker said. “We brought in the two suspects this morning. Simon Salomar, 32, is a career fence and occasional mugger who has lived here in Royston all his life. He has a girlfriend and a child by her. ‘Little Rick’ Wheaton, 27, is a burly, bald fellow who does the enforcing for a small-time racketeer downtown. He’s been a suspect in several muggings, and has no family. Both have been in jail several times and are known to frequent the area of the crime.”

“I see,” said Stanwick, tossing the newspaper onto Walker’s desk. “And how is the professor doing?”

“He has a mild concussion, but should be fine. He was struck from behind while walking back to his hotel, and remembers nothing.”

“Did you have any luck with your questioning?”

“I’m not sure yet. Both men said they knew nothing about any mugging last night, so I showed them each that article. Salomar denied ‘bashing the Frenchie,’ but said that if he had ‘he would have caved in his skull.’ He said he spent last evening with his girl and his kid.

“Wheaton also denied involvement. He rents a room at the Olsen boardinghouse, and says he took a nap there in the early evening and then showed up at the Blumen Road pool hall ‘about ten.’ Neither therefore has a reliable alibi witness for the time of the crime.”

“Presmonger! Of course!” exclaimed Stanwick. “The anthropologist. Didn’t he study the prehistoric cave paintings found in the south of France last year? I knew I had heard the name somewhere.”

“Anthropology is his field, yes. I’ll take your word about the cave paintings.”

“Presmonger, indeed,” murmured Stanwick. “One of your suspects is definitely implicated in the crime, Matt.”

**WHOM DOES STANWICK SUSPECT?**

The solution is on page 24. Have a go at solving the mystery, and then check out your answer!
Win an iPod!
It’s as easy as getting stink on a cadaver.

If you’re interested in digital forensics go to
http://www.surveymonkey.com/s/QVFSNCP

and let us know how you use or think you’ll use digital forensics in your classroom.

That’s it.

The drawing will be in October and the winner announced right here in December.

Hot Sites

http://www.abfo.org/
The final word for forensic odontology. You have questions, they have ALL kinds of answers.

http://crime-scene-investigator.net/
Your students will love this site—it tells you about the different specialties, suggests colleges and how to become a CSI, and lots and lots of other great stuff. Teachers will love it too.

http://www.fbi.gov/fun-games
The FBI has done a nice job of putting together a collection of links that will keep students engaged for a long time.

http://forensicentomology.com/
A good starting place for anyone who wants to know more about bugs.

If you want the latest breaking forensic news you can do a lot worse than the New York Times

Given what teens send each other and post to the world, this blog represents a warning to the digital generation.

http://www.forensicpage.com/
The gentleman behind this website offers a treasure chest of great forensics links. Wow.

http://joegiacalone.net/cold-case-squad/
A great blog about cold cases with lots of eye candy. Don’t go to this site if you have work to do. You won’t do it.

http://www.abarbour.net/vlibft.html
A very nice collection of links, especially if you follow some of them because you’ll uncover a lot more. Some general forensics stuff, but mostly forensic toxicology.
Chewing the Fat: A conversation with Dr. Lowell Levine

If all else fails, forensic dentistry (or odontology) is often the last resort, especially when the elements or fire have conspired to rob investigators of DNA. It’s quicker than DNA, easier to verify, and portable. Forensic odontologists have long worked to identify human remains whether a person was killed in a murder, or the victim of a mass casualty like a plane crash. Teeth are marvelously tough and many countries have records of their citizens via their teeth. Militaries are also wonderfully bureaucratic, requiring their servicemen to take dental examinations before deployment. And dental identification of human remains was going on decades before anyone thought to use DNA. We caught up with Dr. Lowell Levine, one of the pioneers in the field who helped identify thousands of unknown bodies including the Czar of Russia, Dr. Mengele, and founded the American Board of Forensic Odontology. Still working for the New York State Police, he agreed to talk to us about his career and his views on education.

By Mark R. Feil, Ed.D.

The Forensic Teacher Magazine: For our readers, how is forensic odontology different from dentistry?

Dr. Lowell Levine: The specialty odontology was named that by the Europeans, so that’s why it’s called that. There really is no difference. Forensic dentistry is that area of dentistry which deals with the examination, analysis, and reporting of dental evidence for the justice system, both criminal and civil.

FT: I have to ask: what drew you into this field?

LL: An accident (laughs).

FT: An accident?

LL: Yeah. It happened really just by accident. I was in the navy reserve in 1968 and I was teaching at New York University’s dental school at the time. I had taken a course at the Armed Forces Institute of Pathology, which doesn’t exist anymore.

FT: That’s right—they just closed down.

LL: And they used to send us to all kinds of educational stuff in the navy reserve in those days. And the course was forensic dentistry. I used to teach a couple days a week at NYU Dental School. I told the dean of the school that I were doing a week’s worth as part of the navy reserve. When I got back there was a very, very famous medical examiner from New York City by the name of Milton Helpern who had been there for about twenty years. He was world renowned. In those days New York City was the Mecca for forensic sciences. I don’t know if it’s still true, but the physicians didn’t know a whole lot about dentistry. And he had a case where he needed some dental opinions. So, I went over and looked at a skeleton that they had found at Coogan’s Bluff where the old polo grounds were, where the New York Giants used to play. In looking at it, there was a healing of extraction sites, and I told the medical examiner and the police who were trying to identify the woman that she’d had a tooth taken out about two to three months before she was killed.

FT: Go on.

LL: They had a story in the newspapers and, would you believe, the very next day her family contacted the police after reading about it?

FT: Really.

LL: (Laughs) Yeah.

FT: Wow!
The girl had been missing for two years, and she had had a tooth extracted shortly before she disappeared. And they gave the name of the dentist who was an oral surgeon luckily, got an X-ray film, and it was her.

FT: No kidding.

LL: It was the first case ever where it was a classic example of beginner’s luck. Then I looked at a number of other cases and one day Dr. Helpern’s secretary called and asked if I would come over, he wanted to talk to me. It was probably about three or four months later, after I had looked at a number of cases, he asked me, “How’d you like to be a consultant for the office? You get a deputy’s salary for every case you look at.

FT: That’s good!

LL: Yeah. You get a badge and you get a parking placard.

FT: Nice.

LL: Guess what was the only thing I heard, the only thing I cared about in New York City?

FT: The badge?

LL: No…

FT: The parking spot!

LL: (Laughs) And that’s really how I ended up in it. And there weren’t very many people doing it. So, I got a real ton of experience. In those days also, they were running over 2,000 homicides in New York City. I got a lot of experience really quickly.

FT: And this was 1968?

LL: 1968.

FT: And you had a spot to park your car.

LL: I had a spot to park my car.

FT: Now, how much has forensic odontology advanced since 1968?

LL: Well, the advances are huge. First of all, we have a specialty board, the American Board of Forensic Odontology, which examines peers for proficiency. So, there’s over 100 diplomates on the board, and you really have access to some expertise in most of the US and Canada. Another area is all the databases using dental information.

FT: Oh yeah…

LL: We still have an advantage over DNA because we still have instant gratification. In other words, I can look at two films and tell you. Identification is always based on a comparison, comparing the object in question with a similar object from the person when they were living. In dentistry the easiest thing to do is dental radiographs, or dental X-rays. I consult with the laboratory that does the MIA identifications from all our prior wars. An interesting thing happened: up until the mid-50s, dentists used the old-fashioned, belt-driven dental drills where if you had to do a two-surface filling it was a half day job. They used to wait until the decay became enough so they could break the margin of the tooth…

FT: Oh, my.

LL: The thing that changed all that was the invention of the high-speed dental drill in the 1950s at the Naval Dental School in Bethesda. So now, instead of taking half a day to do a filling you could do half a head in two hours. So, it mandated the need for better diagnostics. The dental profession started getting radiographs on people to look for dental decay. Also, if you stop and think about it, in those days the military had the draft. Just about everybody was taken into the military, and they would get a set of X-ray films.

FT: I never thought of that.

LL: Most people don’t. It was really the watershed of dental identification.

FT: I’ve heard of POWs and MIAs being repatriated and the media reports it’s because of dental records, but I’ve always wondered how the military finds the deceased’s dentist. It never occurred to me the military takes dental X-rays.

LL: Actually, I served in the military on active duty. I was in the navy, with the Marine Corps. All of a sudden, remember you had millions of men who were in the service in those days. So, you have this huge repository of things you could compare.

FT: Ahhhh…

LL: So, as I said, we’re comparing radiographs, X-ray films, and if you can do the comparison you really don’t need very much. From the late fifties, early sixties on you had bunches of dental X-rays and they were all available for comparison. The whole identification business up through the Korean War was literally the same as they were doing during the Civil
War. And the quantum leap was the availability of dental radiographs. That made a huge, huge difference.

FT: Is there a national database of dental records now?

LL: There are a number of databases. The FBI has one, there’s one called NAMUS. They’re both very different, and both very useful. I work for the New York State Police; we use them all the time.

FT: Fascinating.

LL: If you remember in the middle or late 90s, they had a group from the 101st Airborne returning from the Middle East where they were peacekeepers, and the plane crashed in Newfoundland. Up until then the military always took their own health records on travels with them. After that happened they lost the dental X-rays in the ensuing fire of the crash. For a while they set up where they would take a double pan-oral X-ray film, the one that goes around the whole mouth. One copy would be carried by the person for diagnostics, and the other one would be entered into the database in Monterey, California.

FT: I see…

LL: So that was a valuable identification document. What’s interesting is it eventually dawned on people through the forensic odontologists doing the work that X-rays would be the most valuable thing. The dentists in the military would actually do a hand-drawn odontogram, a picture of all the teeth surfaces. They would do a scaled diagram, which depicted the dental treatment that was done including the filling material and the extent of it.

FT: So, this is like, WWII?

LL: Yes, WWII, Korea, and even up until the ‘60s that was considered the identification part.

FT: I’ll be darned.

LL: And those odontograms, actually, it’s funny because we were just looking at some from the victims of Pearl Harbor. Those are literally as unique as radiographs; they’re so well done, almost like a photograph. At any rate that was one side of the coin.

FT: Tell me, what is the demand for forensic odontologists today?

LL: It’s acute when you need one (laughs). Law enforcement is reactive instead of proactive. I was one of the few forensic odontologists who was a salaried employee of law enforcement because in 1985, almost fifty years ago the then director of criminal justice in New York state, the superintendent realized they were having real problems with cases because of the dearth of forensic expertise in the upstate areas of New York City. So they set up a forensic sciences unit where they were able to get expertise from all over.

FT: A forensic odontologist probably doesn’t get that many cases, but when you need one you need one now.

LL: Oh yeah. We get a lot of them because we have it available, and we have an educational program about the fact that we do have it available. We see a significant number of cases, enough to make it cost effective. Of course, we save huge gobs of money that would otherwise be invested in looking for expertise.

FT: I understand.

LL: Other things we get into is the interpretation of trauma to the teeth, face, jaw. One of the interesting things is our troopers are often accused of beating people up in the course of arrests. The state police were paying out interesting sums of money over that. When we came along we told our legal council, “You know, don’t pay. Let us review everything.” One of the interesting cases was a woman who had gotten arrested claimed one of our female sergeants beat her up and knocked her front tooth out.

FT: So, the cop beat up the suspect.

LL: Allegedly.

FT: Allegedly, yes.

LL: So, at any rate we found during the investigation—in civil suits they’ve got us on a leash letting you look at their health records. We went to every dentist we could find in her area, and found records to show that tooth had been in and out of her head a number of times.

FT: She liked the idea of suing the cops.

LL: She wanted to blame the sergeant. So, that went away.

FT: That’s good.

LL: And we could give our bosses the answer. They just wanted to know what the answer was. They didn’t want people to do stuff like that.

FT: Let’s turn the clock back a little bit. What were you like as a child? What sort of things were you into? Were you the kid who never got in trouble, or...
were you the kid who was always exploring, the kid who never listened?

LL: You know, I grew up in the streets of Brooklyn. I was a latch key kid before it had a name. I was always interested in, and was fairly good with my hands, so dentistry seemed like an interesting thing to get into. I wouldn’t say I was a scientist-kid, though I was always interested in that stuff.

FT: What was your parents’ attitude toward education? How did they regard an education?

LL: My father was an immigrant from Poland. Actually, it was either Russia or Poland, depending on who was winning the war. One of the things that really amazed him was when I was with a small group over in Russia twice, in Moscow and St. Petersburg helping to identify the czar in the middle ‘90s. He thought that was astounding because he remembered the conditions. He came from a very poor family. He told me while he was there he couldn’t have gotten within miles of there. He was also impressed I was involved with the identification of Joseph Mengele with the Department of Justice.

FT: I remember that. You were involved with that.

LL: Yes. I was the dentist.

FT: That’s neat.

LL: Yes, I’ve been fortunate.

FT: Let me ask: What kind of thinker are you? Are you visual, verbal, you said you were hands-on? How do you learn best? By watching, by listening, by doing?

LL: Probably all three. You have to do everything. You have to listen; you can learn a lot. You have to be analytical, and you have to be able to be hands-on to do the work. It was interesting. I don’t know if you realize, but forensic medicine or pathology is practiced in various ways in different parts of the world is that the physician will never take his suit coat off. They will usually have somebody who will do the dissections for them. I didn’t know if you knew that.

FT: I didn’t.

LL: That’s the old, classical European way. In Latin America they have a specialty called medicina legal for the court. We were in Argentina training a group of Argentines for the exhumations and examinations of the 9,000 people who were murdered by their military regime.

FT: The disappeared.

LL: The disappeared. And it was funny because they had never done a medico-legal exhumation there.

FT: Really?

LL: Yes, the way we do them in the US. The first day we were about to do them we were all wearing jeans, work boots, and stuff like that, and the Argentine doctors all showed up in suits (laughs). They didn’t realize that we were hands-on in the US. It was a little bit of a culture shock. They would actually have dieners—

FT: Oh, yes.

LL: Dieners. They do the dissections and then they clean up the organs, they bring them over in a little pan, they show them to the doctor who makes a note and goes on. We’re very, very different that way.

FT: Does that system still exist in other countries?

LL: Oh, yes.

FT: Wow.

LL: I haven’t been there recently, but I’m sure they still do it that way.

FT: That’s amazing. Now, what kind of student were you in school?

LL: About a B+.

FT: What were your favorite subjects?

LL: Biology, history. I was biology major.

FT: OK. Everybody has their favorite teachers that they couldn’t wait to get back to the class for. So, I want to ask what did your favorite teachers teach? And is there something they did to really make their subject come alive?

LL: Believe it or not, the teacher I remember most was from Hobart College, a little, bitty college I went to in upstate New York. I had come from high school, which was huge, in Brooklyn, New York. We had Saturday morning classes in those days. My first class on Saturday morning was an
English teacher by the name of Katie Cook, and she used to have class at her house, which was just off the campus. And she used to serve muffins or something else for breakfast.

**FT:** So, 20 or 30 kids would sit in her living room?

**LL:** Maybe 15. And she would have her freshman English class.

**FT:** Wow.

**LL:** And she was absolutely spectacular. She knew everybody’s name, she knew what your aspirations were, and she was there to try and help you, which was a totally different phenomenon from going to school with eight zillion kids.

**FT:** So you had a lot of teachers in high school who were just there to punch a clock who really didn’t care about the kids or their subject.

**LL:** Exactly. It was the first place in which the whole college cared. It was an interesting experience. They had teachers that really cared. I’ve got a daughter who just started college at UC Berkley, and she’s just having a wonderful time (laughs) because of the way they teach out there. She had one teacher in high school who was an individual who ran an AP English course, and he ran it like the college ones.

**FT:** So he had high expectations?

**LL:** Exactly. He had bright kids and he taught the course like they were in college. He was the favorite of many students because of the way he treats the kids, like they’re mature college students.

**FT:** So, if I were to ask you what advice you have for high school teachers today, it would be along those same lines?

**LL:** Yes. Hopefully, you’ll have a class of very bright kids, and you really need to know what you’re doing inside and out, challenge them. I met my daughter’s professor because he lives not far from where we are. He was telling me he loved having her in his class because she’s willing to take chances. She looks at things from all different angles. The best thing I could tell high school teachers is to go out and learn what you’re doing, learn the subject, because these kids can tell when you’re kind of doing it from a book.

**FT:** Yes, they can.

**LL:** Particularly in the forensic area. The kids today glamorize, they think everything is like *CSI* on TV.

**FT:** Unfortunately, that’s true.

**LL:** They all wanted to be profilers when profilers were getting all that PR. And really, it’s a ton of hard work.

**FT:** What if you have a teacher with a mixed bag of kids, some are low performing, some are high performing, some don’t care about anything, while others are focused on their goals. What do you have to say to those teachers?

**LL:** One of the things that makes me crazy about the American education system is that we run it to the lowest possible denominator. Most kids have something they do really, really well.

**FT:** Yes. Everybody has a different passion, and a different talent.

**LL:** While college is great, there are things to do that are required that will turn them off.

**FT:** I agree. To a certain degree, in America, college is over-glamorized. There is a lot of push in our high schools about getting the kids to college. We’ve got to up the graduation rates, we’ve got to prepare them for the future, they’ve got to go to college, but the college graduation rate in this country is one in three. And not everybody wants to, or should go to college.

**LL:** That’s right. And there are ways, particularly these days with the new technology that’s coming out. In the older area where I am, the whole industry is going berserk. You know nanotechnology?

**FT:** I do.

**LL:** And now the University at Albany is becoming the
which are taking advantage of what’s coming in here. They just opened Global Foundries where they have, I think, 1,500 jobs as technicians that start at $80,000. There are kids that have been prepared. Many of the two-year colleges and high schools are preparing the kids as nanotechnicians.

FT: Wow.

LL: They have respectable jobs that pay a lot of money to raise a family on.

FT: That’s neat.

LL: So, when they talk about getting into jobs that are 21st century jobs, you need leather to make buggy whips. It’s not going to happen. And these politicians that are talking about getting into industries where they’re salable are right on the money. And that’s actually happening. They’ve coined a name; they’re calling it Tech Valley. And if you look they’ve got a Tech Valley where they’re teaching kids at the high schools.

FT: A lot of high schools are developing themes. And that’s great. Listen, do you have any advice for students who want to go into forensic odontology?

LL: Yes. Get good grades. Study for your SATs. You’ve got to get into dental school and get a dental degree, and then work in the area afterwards. So, the best thing students can do is get good grades, good study habits in high school and you will find you’re in pretty decent shape for getting into these [forensic] areas.

FT: Are there specific training programs for forensics?

LL: Yes, there are some coming online. A lot of ours were learn-as-you-do-it, and now they actually have some colleges that are doing this, short courses and long courses. Lots of good stuff.

FT: Well, it’s like you said: there’s never a forensic odontologist when you need one…

LL: Right. And luckily now a days, because of the technology that’s available, we look at a lot of stuff—we’ll get radiographs or photographs of evidence sent to us as jpeg files, so that’s a huge advantage. It used to be, in the old days, if you had an airplane crash everybody would descend onto the scene. It was all kinds of problems. Now a days you have a hand-held X-ray machine and you can acquire all your postmortem information on the spot, which is what we do now. And you can transmit it to another location. It used to be you’d wait for someone to bring the X-ray films to you. Today you can get all this stuff with digital radiology.

FT: Right. I went to the dentist two weeks ago and they’re not using film for bitewings, they’re using digital imagine.

LL: There’s significantly less radiation. It’s like a cancer treatment: you don’t have to be at Sloan-Kettering to get the advantages of their doctors because of the magic of the Internet you can actually be treated anywhere. We’ve got the same thing. We can get radiographs and photographs from Europe overnight. The whole technology through their databases to put the information through. And it will keep changing. The kids today are more savvy with the computer than us; it’s going to get more and more interesting.

FT: Who would have thought ten years ago we’d be where we are today?

LL: Think about the poor guys who bought into the pager business. They were put out of business by cell phones. That’s how military medicine went. They used to try a game plan about where they’d be in five years budget-wise; pretty soon they couldn’t game plan where they’d be in five months.

FT: Right. Nobody could have foreseen the advent of smartphones where you can look at jpegs right there.

LL: Right. We’ve talked about how it used to be how when we had a large aircraft go down it would have been a logistical nightmare. They would have been trying to do everything there with no capability. I just send a couple of guys up there to acquire all the postmortem evidence digitally, and they send it to us in a location where we could easily acquire the antemortem evidence for a comparison. You really need an imagination, which goes back to school again for the other courses that expand your imagination and your ability to think of things and plan things outside the box. These are extremely useful.

FT: One last question: you’ve been doing this for quite some time. Any plans to retire?

LL: (Laughs) No.

FT: Good for you.
LL: As long as we get very interesting cases. The good thing about what we do for the New York State Police is we only deal with headaches. We’re not the primary death investigators.

FT: Oooh. You’re the specialists! You’re the guys they call…

LL: Yes, we’re the guys everybody else wants to be because if somebody is really stuck they come to us, so we’re really dealing with the most interesting cases. So, we’re very fortunate. Plus, we’ve always been allowed to help other jurisdictions. We’re involved with many interesting cases. I don’t know if you remember Dr. Swango [a serial killer], but the chief investigator for the Veteran’s Administration was—well, nobody wanted to get involved—but he thought this man was killing people in hospitals.

FT: An angel of death.

LL: Yes. And he was. He was technically a New York State employee. The FBI blew it off, the district attorney blew him off, so he came to us hoping we would do something with it because he was a New York State employee, but he murdered his patients at a VA hospital. He’d come to the end of is road, and we were his last desperate hope. Dr. Baden talked about it, and they were really interested; they came up with a game plan of what we would do and see where it would go, and it ultimately led to this guy pleading guilty to murders all over the place.

FT: What role did forensic dentistry play in this case?

LL: Believe it or not, when you exhume remains, even if there’s a headstone on the grave, you’ve got to legally identify the body.

FT: That makes sense.

LL: We did that for Medgar Evers for when he was re-autopsied, and we did that here. We were even able to get a fingerprint off the body after twenty some odd years. So, we get some really interesting cases.

FT: Somebody once told me if you enjoy your job you’ll never work a day in your life.

LL: That’s true. Sometimes you get real tired though.

FT: I understand, but you can wear yourself out relaxing, too.

LL: Absolutely. Sometimes it’s really tough because you’re dealing with families, you’re dealing with victims, you’re dealing with crashes, but it can also be very rewarding.
Forensic Dentistry:

By Faith Y. Miller, CDA, RDH, MSEd and Robert S. Corruccini, Ph.D.

Criminal investigation is more interesting in various fictional and non-fictional television programs when the subject of death or crime scene investigation is added to the mix. In addition, high-profile cases of missing persons have some viewers glued to 24-hour news channels. Laymen can have a virtual field day working to solve crimes before Mack or Grissom. Teachers of forensics know crimes are not solved within an hour; DNA analysis is rarely conducted in a hurry, and can one actually get a hit from AFIS in 15 seconds? Forensics takes many forms, one of which is often used in real life, but rarely mentioned in Hollywood: odontology.

In its simplest form, forensic odontology can be defined as: “a branch of dentistry that deals with the identification of human bodies by examination of the dental remains.” Perhaps a more formal definition is: “…that area of dentistry concerned with the correct management, examination, evaluation, and presentation of dental evidence in criminal or civil legal proceedings.”

The foundation of education for the forensic dentist, or even the dental hygienist interested in forensics, begins with courses taken in dental and dental hygiene school, respectively. Aside from clinical courses, students have courses in ethics and jurisprudence, oral anatomy and tooth morphology, dental radiology, and dental materials, to list a few. These courses lend themselves to assisting the forensics experts, or those working under a forensic dentist, the practical experience necessary to accomplish specific tasks related to collecting and analyzing evidence, or identifying human remains. The most basic form of forensic dentistry is maintaining an accurate, legible record of dental treatment given to clients.

While the dental student, upon completion of dental school, can spend additional time working towards one of the many dental specialties, there are no specific courses in the dental curriculum that provide him/her with the experiences that would afford them a certificate in forensics. This is gained by a specialized curriculum set apart from the mainstream. The Bureau of Legal Dentistry (BOLD) in Vancouver at the University of British Columbia offers courses.

Few may be aware that in addition to his famous ride sounding the alarm of a pending British invasion, Paul Revere was also a silversmith and denture maker. The very individual who dispatched Revere, was also the recipient of an artificial appliance made from silver wire and a portion of a hippopotamus tusk to replace missing teeth. Dr. Joseph Warren’s skeletal remains were identified primarily from the partial denture made for Warren by none other than Revere himself. Warren was buried with full honors thanks to Revere’s recognition of his dental work, and saved from being left in an unmarked grave. In some instances, Revere has been named, unofficially, the “Father of Forensic Dentistry.”

Bitemark analysis has been called “junk science” to a certain extent. In all cases, the experts must determine if it is human, and to come to a conclusion “within reasonable dental certainty” that the marks left on a victim or by a victim are in fact human bitemarks rather than marks left by an animal, tools, nails, bottle caps, or even rocks.

One of the first cases on record where bitemarks were introduced into evidence comes from 1870 when Dr. Jonathan Taft was asked to compare a set of teeth to bitemarks left on the body of Miss Mary Lunsford. Many of the methods used by Dr. Taft...
The Forensic Teacher • Fall 2013

Taking a **bite** out of, well, you know...

have been adopted by the American Board of Forensic Odontology (ABFO), who has an established treatise published on their website (www.abfo.org) that outlines a systematic approach to the collection and analysis of bitemarks. Bitemarks are left behind as defensive wounds and not just signs of attack on a person’s body, as is the case in sexual assault, child, or elder abuse.

In a famous twist, bitemarks proved to be the proverbial comeuppance for Ted Bundy. This crafty serial killer had eluded authorities in two states prior to finally being caught, tried, convicted, and put to death for violent crimes against women in Florida. The forensic dentist for the prosecution presented such a compelling case, the jury found Bundy guilty of murder and he was subsequently sentenced to death. Bundy’s teeth left a significantly identifiable mark on one of his victims. His lower incisor teeth left behind a pattern that matched that of a bruise from the victim.

A more contemporary case is that of Ray Krone, aka the “Snaggletooth Killer,” so named because of his crooked teeth. Krone was wrongly accused and sentenced to a murder he did not commit according to post-conviction DNA evidence. Having spent 10 years in prison, it was felt that Krone deserved a break and was featured on the ABC-TV reality series “Extreme Makeover,” where he received extensive dental work. Krone was originally found guilty based upon the bitemark evidence submitted by a forensic dentist. The caution the profession takes is that of assuring those claiming to be experts in the area of forensic odontology have gone through the certification process. Just because one consults on a few cases does not make them ABFO certified and the website lists dentists in every state as a way to protect the public from fraudulent practitioners who may be misrepresenting themselves and the dental profession.

C. Michael Bowers gives six basic scenarios in which human remains require dental examination:

1. “Intact body with little to no decomposition found with no identification.” He states the dental examination should occur as quickly as possible in the process of data collection.

2. “Decomposing human remains.” Dental information at the onset of the investigation could add to the decedent’s profile and should be correlated to any available personal effects.

3. “Skeletonized human remains.” It is recommended both a forensic anthropologist and forensic dentist be used. It is suggested the anthropologist be certified by the AAFS (American Academy of Forensic Sciences). Specialized training is necessary to assist in the excavation and recovery of bones or bone fragments.

4. “High-energy accidents or terrorist acts.” Body parts become dismembered and fragmented, therefore the forensic dentists can aid in the recovery and identification of dental remains.

5. “Homicide cases.” The forensic dentist has expertise in collection of bitemark evidence from both the assailant, and the victim.

6. “Sexual assault and domestic violence cases.” For the same reason in number 5 above, victims and suspects will leave bites on skin in violent attacks. Analysis of the bitemarks, according to Bowers, should be left to the forensic dentist.

Some links that will be of interest to anyone wanting more information on forensic dentistry include the following: http://www.dentistry4u.com/history_of_dentistry.htm and http://www.truthinjustice.org/junk.htm

Teeth can leave impressions on skin as seen here in this bitemark. Note the ruler for scale.
One of the first things a forensic anthropologist or forensic odontologist does when presented with unidentified human remains is to determine if they might be "noncontemporary." This means that death occurred more than 50 years ago, so there is no medico-legal significance to the remains. In North America, skeletons may be of much greater age, pertaining to prehistoric (truly “ancient”) Native Americans. Only if the remains are judged to be “contemporary” (and the individual died less than 50 years ago) are they of potential medico-legal significance, perhaps even indicating a crime scene. If well preserved and accounted for, the human teeth are far and away the most useful indicator of a recent death. Virtually all contemporary North American people have had an industrially refined, soft diet for all their life. They are much more likely to have decayed teeth and the various kinds of modern invasive dentistry (crowns, extractions, fillings, partials, dentures, etc.) than to have wear of the teeth through chewing of gritty and tough "unrefined" foods. Prehistoric Native Americans demonstrate unmistakable wearing down of their tooth crowns, starting at the tips of the cusps, early on in life.

Teeth also bear a fair amount of information about the genetic ancestry of remains. Euro-Americans frequently have an extra cusp on their upper first molars, and relatively small third molars ("wisdom teeth"). Native Americans almost always have "shovel shaped” upper incisor teeth, meaning the side toward the tongue is concave. African Americans have relatively larger premolars and third molars, and often show extra tubercles (enamel bumps) and ridges on the inner side of their anterior teeth.
Dental Exercises

By Faith Y. Miller, CDA, RDH, MSEd and Robert S. Corruccini, Ph.D.

The Forensic Teacher • Fall 2013

ice-cube trays. The students try to determine, based upon criteria, what teeth are human vs. nonhuman. Teeth can also be obtained from a local dentist or oral surgeon. In addition, the students can be given a collection of evidence consisting of a number of teeth mixed with dirt or debris. Their objective is to determine how many individuals make up the sample. For instance, if five canines are found there must be more than one individual’s remains present.

If you are fortunate enough to have a budget for supplies you can order a dental impression kit from any of the major forensic or scientific supply houses. In each kit will be dental mold forms for about 30 students in a couple different sizes. Each kit also contains an alginate or similar substance that you mix with water and it turns into sticky, gooey, rubbery stuff. You spoon some alginate into the molds, the students put them into their mouths, bite down, and then wait. After a minute or two the mold can be removed, allowed to harden, and wet plaster can be poured into it. Following a drying time of overnight (until the next class) the plaster cast can be carefully worked free of the alginate to reveal a cast of the students’ teeth. If you have more than one class you can boil the mold forms to sterilize them. The resulting casts are very interesting to the students who have never really looked inside their own mouths, and lend themselves quite well for metric analysis of their teeth. This is a type of analysis using rulers and an easy protocol to be explained in a future article.

An additional activity involves giving a Styrofoam cup to each pair of students working in small groups of 4-5. They are instructed to cut the bottom off, then slice it in half with two parallel cuts running from the lip of the cup toward the bottom, one on each side. The pieces can be trimmed so they fit in students’ mouths. Each student bits down gently on a piece of Styrofoam and makes an impression of their teeth. The students then put their heads down on their desk and close their eyes. The teacher will silently hand a piece of cheese to one of the students who will take a bit out of it. The cheese is then placed in the center of the table and the students (minus the guilty one who remains quiet) are left to examine the foam impressions of the members and determine who bit the cheese.

The teacher could also involve law enforcement and their dental offices in creating a mock crime scene or case for the students to work through. The creativity of the teacher is driven by the enthusiasm of the students. The more they learn, the more they will want to learn.
Last year, I was completely inspired by my students at The Urban Assembly of Government and Law in NYC to add more life to my odontology unit by incorporating the undead—vampires! My students and I have had long conversations about the happenings of vampires in several popular book series, television shows, and movies. Rarely does an episode of *Vampire Diaries* air without a debrief-session at lunch the next day in my classroom. It was only a matter of time before I could justify discussing vampires in a scientific way with my students.

I have been teaching Introduction to Forensic Science on the high school level for several years, at various schools, but keeping students’ interest during the odontology unit has always been challenging. I usually begin the unit by having students label each tooth in an adult set. The purpose of this is to establish basic vocabulary so that subsequent forensic analyses and activities can be more meaningful by using the correct tooth name.

After that initial lesson on tooth naming and function, I tailor my next two lessons to my students’ (and my own) interests. The objective was for students to review tooth naming by examining vampire teeth. Students started the lesson by writing a hypothesis, “If I examine several vampires, then most of them will have fangs located _____ (fill in the tooth position)”. Using PowerPoint, I gathered photos from the web of various vampires showing his/her fangs. Photos included older vampires like Dracula and Barnabas Collins and then lead into newer vampires like Johnny Depp as Collins, the *Twilight* series vampires, *Vampire Diaries*, *True Blood*. Other famous vampires were from *Interview with a Vampire*, *Lost Boys* and the *Buffy/Angel* series. Nevertheless, each student had to look at the photo and jot the location of the vamp teeth. At this point, students’ interest was high and a web of conversation began as students were self-correcting each other about fang placement. It was quite interesting to see how fang placement varied from vampire to vampire.

Next, students were shown a YouTube clip of a vampire montage featuring the vampires from the Power Point. There are a plethora of YouTube clips to choose from. I used three minutes of “The Vampire Montage” posted by DarkKnightFan85 (http://youtu.be/vKnHj8JtlmM), but I did have to strategically interrupt the clip at some parts that were inappropriate. The montage was put to heart-racing music as vampire heart-throbs flashed on the screen. Students were smiling, laughing, and reacting positively to what they were seeing on the screen.

After the fun of the montage, students were required to write their reaction. First, they had to compare their data (results from the PowerPoint photos and montage) to their
hypothesis. Then, they had to compare/contrast the vampire images and explain where they thought the fangs belonged. Students were encouraged to focus on the placement of the fangs on vampires utilizing forensics terms learned in class. Did fangs at the canine position evoke a different feeling than fangs at the lateral incisor position? Are there any theatrical reasons for fang placement?

As a closing activity, students were instructed to come to a consensus within their 3-4 person group and design their own vampire complete with vicious teeth. My students had lots of laughs as they presented their designer vampire to their classmates. I knew learning had occurred when students were defending their vampires by fluently utilizing tooth names correctly.

After seeing my students’ designer vampires, I decided to expand the activity further to accommodate the Science Common Core Standards for Reading (Grades 9-10: Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts). The next day, students read the article, “Are True Blood Vampires’ Fangs on the Wrong Teeth?” by Leslie Gornstein, available at http://www.nycsmiledesign.com/new-york-city-cosmetic-dentist/media/Print/true_blood.pdf. They compared and contrasted Gornstein’s opinion about fang placement to their own findings from the day before. At this point, students were asked to reflect back on their original hypothesis, and to write a paragraph explaining if they changed their point of view during the course of the two day lesson. Students needed to back up their response with examples from the materials (these were the photographs, YouTube clip, article and our class discussions). This part of the activity aligns with Science Common Core Standards for Writing arguments supported by texts.

As I prepare to teach this unit once again to a new cohort of students, I find myself anticipating these two lessons. The vampire hype has only strengthened at our school as has the emphasis on creating engaging, student-centered activities that are aligned with the Common Core Standards for Reading and Writing. Whenever I can find a way to engage my students, I feel as invincible as a vampire.
Unit: Forensic Odontology

Daily Objective: to review tooth naming by examine vampire teeth

I.A.: Use your notes from yesterday to the teeth in an adult set

Common Core Grades 9-10 Reading 9: Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.

I hypothesize that if I examine several vampires’ teeth, then most of them will have fangs at the ____________.

<table>
<thead>
<tr>
<th>Character or Movie/Show</th>
<th>Vampire Teeth Location</th>
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<tr>
<td>1958 Dracula</td>
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<td>Lost Boys</td>
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<td>1960s Dark Shadows</td>
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<td>Johnny Depp/ Dark Shadows</td>
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<td>Vampire Diaries</td>
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<td>Interview with a Vampire</td>
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<td>Buffy the Vampire Slayer &amp; Angel</td>
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<td>True Blood</td>
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YouTube Clip Activity (http://youtu.be/vKnHj8JtlmM):

• As you watch this clip, pay attention to the feelings that the fang placement evokes

• After the clip, you’ll have to prepare a written reflection:
  • Compare/contrast vampire images. Where do you think “fangs” belong?
  • What does the position of the fangs portray to you?
  • Are there any theatrical reasons for fang placement?

Exit Activity:

1. Brainstorm with your group what you think are good traits of a vampire. Come to a group consensus.
2. Draw your designer vampire. Start with the vampire’s teeth and then if time permits, draw the face/body.
3. Below the drawing, advocate for your vampire. Try to “sell” him/her to the rest of the class. Use FULL SENTENCES!
4. Be prepared to share with the class!

Drawing of our vampire (start with the vampire’s teeth and then if time permits, draw the face/body):
Mini-Mystery Answer (from p.6)

Solution

“Why are you so sure?” asked Walker.

“Both said they didn’t know about the crime,” Stanwick explained, “yet one of them – Salomar – clearly showed he knew the professor had been struck in the head. How did he know the man had been struck rather than shot or stabbed? The paper only said the professor was ‘attacked.’ Salomar’s the guy, Matt.”

Walker picked up the phone with a grin. “It’s a good thing I have the DA on speed-dial!”

Circumstantial Evidence Quiz Answers
(from p. 57)

1. C.
2. D
3. C/D.
4. C.
5. C.
6. C.
7. D.
8. C.
9. C.
10. C.

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Forensics in Another Light

Using Sculpture to Learn Forensics

By Heather Jacus
I use this facial reconstruction project as an extension to our forensic anthropology unit. Students have already learned how to examine skeletal remains and determine approximate age, race, sex and approximate height. Most of my students are taking advanced forensic science as a senior science elective and this project falls during the last two to three weeks of the school year.

Students learn the process that allows investigators to recreate a physical likeness of an unidentified person. The hope is that when the process is complete a photo is taken and used on the news or Internet to reach a large audience, so that someone may recognize the unidentified person and contact authorities. Students also learn about how the identity would then be confirmed with dental records or mitochondrial DNA from a family member on the mother’s side.

I am always amazed at how engaged students are in this project even though they are in their last days as high school students. I have students come in during their free periods to work, not because they do not have enough class time, but because they want the skin to be smooth or the nose to be just right. I am able to get funding for this project as a part of my regular budget. Here is a rough break down of the costs and sources for materials.

1. “The Art and Science of Facial Reconstruction” video on YouTube is my reference (see bottom of page for the hyperlink). Be sure to budget time; the video is over an hour in length. If you show it to your class ask them to take notes. You can show short segments to students before they work on each part of the process.
2. One 4\textsuperscript{th} quality skull from Bucky’s Halloween store (on-line) for each pair of students - $8.40 
3. One pair of acrylic eyes - $7.42
4. One and a half pounds of oil based modeling clay from Dick Blick art supply. 3.95/lb = $5.50-$6.00
5. Glue sticks for a class of 20/ $4.00
6. Initial set-up (See photos) – cost to build the stands and make the rolling pins and purchase knives and candles is $180 (all supplies purchased at Home Depot). These supplies are not consumable and are re-used each year.

I received a grant from our PTO for the initial set-up money. Some schools charge a materials fee for art and science classes to cover this initial expense.

The basic procedure, detailed in the video, is as follows:

1. Cut and place tissue depth markers (glue sticks).
2. Create tissue framework with clay.
3. Set eyes in sockets.
4. Fill in tissue (clay) in small sections.
5. Create the nose, lips and ears. All of these features are based on measurements taken from the skull. Detailed instructions are in the facial reconstruction video.
6. Smooth the flesh using acetone and long strokes with thumbs. Try not to get acetone on your skin.
7. Add details; brow bones and fat pads on cheeks.
8. Based on the race and sex of the skull create hair, brows and other details.

The video gives all directions in detail, demonstrating measurement, calculations and how features are formed with clay. When my students get to the last step, I allow them a lot of creative freedom. They understand that in a real case that they would be much more conservative with the details, so as to not overshadow the basic features for identification. A suspenseful movie that relies on facial reconstruction of murder victims is Gorky Park if you want to show it in part or in entirety to your students.

The Art and Science of Facial Reconstruction video link:

https://www.youtube.com/watch?v=6G0LvImAGAg

Heather Jacus teaches at Clayton High School in a St. Louis suburb. She teaches forensic science, and PLTW courses Principles of Biomedical Science and Medical Interventions. When she is not prepping a lab she can be found in her garden or restoring old furniture. She is married and has 3 sons.
One type of crime forensics is very much involved in, but doesn’t receive the glamour it deserves on TV is forensic accounting. Your eyes may be rolling back in your head as you weigh columns of numbers vs. blood, guts, bullet casings, and fingerprints, but don’t be so quick to judge.

After all, a forensic accountant did what no one else was able to do to one of history’s most famous, ruthless criminals. It wasn’t a fingerprint, fake alibi, or DNA that finally landed Al Capone behind bars. It was a close look at his books.

Students are famous for not really caring about math. Their biggest question, three days into an algebra course, is, “When are we going to use this?”

Forensic accounting is all about details, common sense, and keeping the quarry in sight. Kind of like fingerprints, fibers, or trace evidence.

The following pages represent a neat activity to introduce the topic of forensic accounting.

Give it a shot! After all, without forensic accounting we wouldn’t have the classic murder-thriller-comedy *Weekend at Bernie’s.*
Learning Activity: Forensic Accounting: Playing the roles of various characters, students pursue the possible outcomes of a fictional embezzlement case.

Learning Objectives
1. Learn how auditors apply critical thinking skills in fraudulent situations.
2. Understand how key accounting and auditing concepts apply to the pursuit and prosecution of “white collar” crimes.
3. Identify the roles that “means, opportunity, and motive” play in a crime.

Academic Standard
“Design and implement security plans and procedures for information systems.” (NBEA)
“Describe the activities of managers and their importance to the successful operation of the organization.” (NBEA)
“Illustrate how the functions of management are implemented and explain why they are important.” (NBEA)
“Explain the role, importance, and concept of risk management.” (NBEA)

Assessment
Students will: (1) identify suspects in the case, (2) identify evidence in the case, (3) identify the “means, opportunity, and motive,” if any, for each suspect.

Business Skill
Forensic Accounting: Fraud, and in particular, employee fraud, is big business. Businesses, in focusing on these “white-collar” crimes, have turned to the accounting profession, and in particular CPAs, because of their financial skills and knowledge. The CPA is engaged to either determine the individual or individuals that have committed such a crime or, if the individuals involved have been identified, gather information and evidence to prove their innocence or guilt.

Part I
Prior to class, make copies of the 12 Role Playing Cards that comprise Activity #13.
Distribute a copy of the Topic Overview to your students and explain any terms or concepts they are unfamiliar with.

Explain that individuals involved in fraudulent activities have the means, opportunity and motive to do so.
- **Means:** The ability and “tools” necessary to carry out a crime.
- **Opportunity:** The time and the access to commit the act.
- **Motive:** A reason and rationale for committing the act.

PLAYING THE GAME
- Assign six students to the roles of “suspects” in the case. The six suspects are: Controller, Personnel Manager, Bookkeeper, T-Shirt Vendor, and Ticket Printer.
- Assign another four students to play the roles of “evidence” as follows: Action Arena books, Action Arena seats, IRS records, and Credit Card Receipts.
- Select a student to play Sam Shade, and begin role playing by giving him or her CARD #1 to read.
- Have the students vote for the FIRST CHOICE, which is indicated at the bottom of CARD 1. The student playing the role of Sam Shade will follow the course of action decided by the majority of the class. In the case of Choice #1, this means providing “Sam Shade” with the card selected by the class and taking it to either the student playing the role of Controller or the student playing the role of Personnel Manager, and acting out the dialogue indicated on the card.
- Continue having the class vote on the choices presented at the bottom of each card until six of the twelve cards have been acted out.

Students should name the Box Office Manager as the main culprit.
- **Means:** Access to tickets and knowledge of the number of seats in the arena.
- **Opportunity:** Control over tickets and sales, and access to bank accounts.
- **Motive:** On-going profit potential from every event.

Part II
- Ask students to identify “famous” corruption cases in American history. For example, Boss Tweed and the Tweed Ring of 19th century New York City; Al Capone and the Prohibition Era; Jay Gould, Jim Fisk and the financial corruption during the Grant Administration; the Teapot Dome Scandal of the Harding Administration; the Watergate Scandal; Panamanian leader Manuel Noriega and drug trafficking; the Savings and Loan scandals of the 1980s.
- Explain that each case required investigators to construct and follow “the paper trail” in order to identify, prosecute and convict the individuals involved.
- Assign, or have students select, a “case in corruption.” Each student, or student group, will write a case study that details the sequence of events that led to the eventual conviction of the individuals involved and, using presentation aides, such as a flow-chart, present the findings to the class.
Fraud, and in particular, employee fraud, is big business. In fact, despite overall crime in the United States declining, advancements in technology and automation have resulted in an increase in the number of fraud and fraud-related cases. A 1998 survey conducted by the accounting firm KPMG reported that each incident of employee fraud results, on average, in a loss of $116,000. Businesses are therefore focusing on these “white-collar” crimes and the potential for employees to engage in fraudulent activities, and have turned to the accounting profession, and in particular Certified Public Accountants (CPAs), because of their financial skills and knowledge.

Fraud accounting, which is more formally referred to as forensic accounting, entails the CPA searching for evidence of “white-collar” criminal conduct. The CPA’s task is to either determine the individual or individuals that have committed such a crime or, if the individuals involved have been identified, gather information and evidence to prove their innocence or guilt. As such, a CPA specializing in the field of forensic accounting often assists legal professionals in the litigation process.

Examples of cases which required a CPA specializing in forensic accounting include (1) determining whether a high-level executive was filing false expense accounts, (2) discovering that a company’s controller was converting company assets into cash for his personal use, (3) verifying that an attorney misused clients’ funds for personal use, (4) proving that a cashier stole thousands of dollars in one year from a cash system considered to be sophisticated and technologically advanced, (5) testifying that a company used misleading accounting practices to inflate profit figures, and (6) investigating instances of bribery and corruption.

A solid, fundamental knowledge of accounting is necessary to pursue a career in forensic accounting. CPAs, however, often complete the requirements for becoming a Certified Fraud Examiner (CFE), thus providing them with a competitive edge. Upon completion of the CFE program, CPAs gain additional knowledge and investigative skills in the areas of fraud prevention and detection.

In order to achieve the CFE designation, an individual must be of high moral character, meet minimum education and experience requirements, pass the CFE examination, maintain required continuing professional education, and abide by the Bylaws and Code of Professional Ethics of the Association of Certified Fraud Examiners.

To learn more about forensic accounting and becoming a CFE, visit the Association of Certified Fraud Examiners at www.cfenet.com. In addition, you can visit the American Institute of CPAs (AICPA) at www.aicpa.org and search on keyword “fraud.”
CARD-1:
Start Sam: Hi, Samantha Shade here. But you can call me Sam, or you can call me Mantha, or you can call me Sammy. Whatever. I’m a CPA, and a Special Agent for the FBI. My specialty? White Collar crime. I call them thugs in ties. Pretty boy crooks in tasseled loafers. Always good for a few mind games. It was Monday morning. I was in hopes of receiving some seriously overdue accounts receivable, and searching for the true meaning of nail polish, when the phone rang. It was the boss, in a lather as usual, ready to toss me one hot potato. Seems that Action Arena, this town’s big Kahuna for sports and concerts, had a teensy problem—a little embezzlement action going on. Our job. First find MOM. Don’t look so puzzled greenhorn, that’s MOM as in Means, Opportunity, and Motive. Together maybe we can set a little trap and catch this rat in a grey flannel suit. I said take a breath bossman. I’m on the case. So who should we see first?

The Controller or the Personnel Manager?
(Class votes)
IF “Controller”—Read Card 2;
IF “Personnel Manager”—Read Card 3

CARD-2:
Interview Controller Sam: First stop, Action Arena to see the whites of their eyes. The controller was ready to throw himself out a second story window. I told him to relax. Now tell Sammy and my partners here all about it.

Controller: All of a sudden we figured out we were taking in more cash at the Box Office than we’d ever been showing. We had no idea where the money came from, what happened to it, and why it never showed up on the box office records.

Sam: Maybe we should meet with the box office manager.

Controller: He’s on vacation.

Sam: So what do we have? Mysterious extra cash. Mysterious disappearing extra cash. I thought it was time to get a little up close and personal with Action Arena’s books in person, or interview the new bookkeeper and get an outsider’s take on the numbers?

(Class votes)
IF “Check Action Arena’s Books”— Read Card 4;
IF “Interview New Bookkeeper”— Read Card 5

CARD-3:
Interview Personnel Manager Sam: First stop, Action Arena to see the whites of their eyes. The personnel manager wanted to spill her guts, about everybody right down to the mailroom.

Personnel Manager: … then there’s Steve in accounting, but he’s very trust-worthy. Same for Gladys, Llewellyn and Jose. Now we do have a new bookkeeper, but I mean she just got here.

Sam: I tried to get her to narrow the focus a bit. In the most polite way possible I said, “Let’s cut to the chase sister.”

Personnel Manager: You know there is one guy who always seems a little shady. Ah, no offense.

Sam: Happens all the time. Who’s that?

Personnel Manager: The Box Office manager.

Sam: Where’s his office?

Personnel Manager: Oh, he’s on vacation.

Sam: Personnel manager says Box Office manager is not exactly Eagle Scout material. I thought it was time to get a little up close and personal with Action Arena’s books. So what should we do next: check over Action Arena’s books in person, or interview the new bookkeeper and get an outsider’s take on the numbers?

(Class votes)
IF “Check Action Arena’s Books”— Read Card 4;
IF “Interview New Bookkeeper”—Read Card 5

CARD-7:
Look into Big Events T-shirts
Sam: The T-shirt vendor was pretty busy. I tried to keep his attention as best I could. Do you work for Big Events T-shirts?

Vendor: I never heard of Big Events T-shirts. I’m an independent company—The Shirt Off My Back T-shirts, yes that’s where Big Events T-shirts was based.

Sam: Action Arena does not do business with Big Events T-shirts. So why are they paying them so much? And what does the Box Office manager have to do with it? There something slinky going on here, and I’m not talking about my feet or yours. So what do we do next? Check out IRS records for Big Events T-shirts…Or follow the scent through credit card records of the Box Office Manager?

(Class votes)
IF “Check IRS Records for Big Events T-shirts”—Read Card 9;
IF “Check Credit Card Records”—Read Card 8

CARD-8:
Check credit card reports
Sam: Mr. B.O. had expensive taste. I found out his yearly salary was $55,000. But he certainly lived higher than your average American citizen. B.O. loves the high Hawaiian lifestyle. Must be where he’s on vacation. Time to regroup back at headquarters.

Sam: I was telling the boss the latest when he surprised me with some news of his own. He found out that B.O. and Big Events T-shirts were definitely linked. He also knew B.O. was riding the big waves in Hawaii, which happened to be where Big Events T-shirts was based. There’s something flaky and light-breaded going on here, and I’m not talking about my mom’s cooking. I told the boss we’d hop a plane to Hawaii pronto. So what do you think we should do next? Go to B.O.’s hotel? Or go to Big Events T-shirts?

(Class votes)
IF “Go to B.O.’s Hotel”— Read Card 11;
IF “Go to Big Events T-shirts”— Read Card 12

CARD-9:
Check IRS records
Sam: There was a D.B.A. (Doing Business As) form and a federal ID number for Big Events T-shirts. So the company was officially registered. But they had defaulted on sales tax payments. Most importantly, the wholesale was registered in Hawaii by none other than B.O. himself. It was time for me to regroup back at headquarters.

Sam: Big Events T-shirts is in Hawaii, and owned by the Box Office manager.

Sam: I was telling the boss the latest when he surprised me with some news of his own. He found out that B.O. and Big Events T-shirts were definitely linked. He also knew B.O. was riding the big waves in Hawaii, which happened to be where Big Events T-shirts was based. There’s something flaky and light-breaded going on here, and I’m not talking about my mom’s cooking. I told the boss we’d hop a plane to Hawaii pronto. So what do you think we should do next? (Class votes)
IF “Go to the Hotel”—Read Card 11;
IF “Go to Big Events T-shirts”—Read Card 12
Check Action Arena’s Books

Sam: I had a sneaky suspicion there was something smelly in the Box Office. And I’m not talking about the nacho cheese sauce either. Basketball game, Box Office intake, $1 million dollars. Bank deposits $1,050,000. Big Events T-shirt check, $50,000. Hockey game, Box Office intake $800,000. Bank deposits, $840,000. Big Events T-shirts check, $40,000. Something fishy is going on. And I’m not talking about the clam chowder. The bank statement shows a deposit of $630,000 for the Smashing Zucchini concert. I know that pretzels are overpriced, but still. Just one day after the concert a $30,000 check is made out to Big Events T-shirts. And I can’t find their address for Big Events T-shirts. Coincidence or psychic phenomena? You be the judge. The Box Office earns 5% more than records show. The extra cash seems to be going to Big Events T-shirts. That could be our means. So what do you think we should do next? Investigate procedures in the ticket printing office or look into this company called Big Events T-shirts?

(Class votes)
IF “See the Printer”—Read Card 6;
IF “Investigate Big Event T-shirts”—Read Card 7

Interview Bookkeeper

Sam: The bookkeeper was prone to histrionics. I tried to get her to focus. I told her to give us the low down.

Bookkeeper: There were so many piled-up papers when I got here. Three unopened bank statements, an electric bill, and this notice saying I could have already won $10 million dollars. Well, the bank statements are usually handled by the Box Office manager, we call him B.O. for short, but he’s away on vacation, so I opened them, and there’s money in there that’s not showing up on the Box Office bank statements. With almost every event we seem to be making an extra $30,000, $40,000 or $50,000. And the funny thing is each of those amounts is exactly the same amount made out to a company called Big Event T-shirts. And I can’t find their invoices anywhere.

Sam: The Box Office earned more than the records show. The extra cash seems to be going to Big Events T-shirts. That establishes the means. So what do you think we should do next? Investigate procedures in the ticket printing office or look into this company called Big Events T-shirts.

(Class votes)
IF “See the Printer”—Read Card 6;
IF “Look into Big Events T-shirts”—Read Card 7

Count Seats in arena

Sam: It took some time and some doing, but we got every last seat counted in the arena’s maximum configuration. When we saw the results, we knew we had found the key—the largest amount of tickets Action Arena sells per event is 20,000. But the maximum number of seats in the place is 21,000.

Sam: The arena has 1,000 more seats than anyone suspected….Anyone, that is, except for the embezzler. Time to regroup back at headquarters.

Sam: I was telling the boss the latest when he surprised me with some news of his own. He found out that B.O. and Big Events T-shirts were definitely linked. He also knew B.O. was riding the big waves in Hawaii, which happened to be where Big Events T-shirts was based. There’s something flaky and light-breaded going on here, and I’m not talking about my mom’s cooking. I told the boss we’d hop a plane to Hawaii pronto. So what do you think we should do next?

(Class votes)
IF “Go to the Hotel”—Read Card 11;
IF “Go to Big Events T-shirts”—Read Card 12

Go to hotel

Sam: It wasn’t hard to trace his trail. We checked into the most expensive hotel in Hawaii—The Blue Sea Resort, and then just followed the scent. We found him immediately, sunbathing on the beach. B.O. we’re hauling you in on charges of extortion, embezzlement and tax evasion.

Box Office Manager: If one more person calls me B.O., I’m going to make mincemeat out of him, starting with that ticket printer. He’s in on this too. I give him a cut from every event. How else would I get the tickets printed for those extra one thousand seats no one knows about?

Sam: Thanks for the tip, bub. OK now pipe down, you’ll have to tell it to the judge.

Go to Big Events T-shirts

Sam: Got the address for Big Events T-shirts. Nothing there but an old, hot, empty warehouse. The air was arid, extra dry. The perfect way to stop B.O. We found him hiding in a corner. B.O., we’re bringing you in on charges of extortion, embezzlement and tax evasion.

Box Office Manager: You can’t pin this one on me. It’s Big City Construction you should be looking for. They built the arena with 21,000 seats. We’ve been splitting the extra income for the last two years. You’ve got to go after those guys.

Sam: Thanks for the tip. Come on, B.O., there’ll be plenty of time for showers where you’re going.
E thics is a topic often glossed over, or omitted, in forensic classes because teachers and students take it for granted the people chasing the bad guys will do the right thing. But there’s a lot a money, drugs, and weapons locked up in the evidence locker in areas where big busts go down. And not everyone involved with the case is concerned with making sure all the loose ends are tied up. It doesn’t happen very often, about as often as the Philadelphia Eagles win the Superbowl, but it does happen.

Hey, the slimebag is guilty, right? Everybody knows it, and he’s going away for a long, long time. It’s an open and shut case, even without all this evidence. Plus, that dealer took a plea deal. None of this evidence will see the inside of a courtroom. And I got three kids in college, capiche?

Sometimes one of the good guys will step over the line knowing full well what he or she is doing. Other times, a professional will not know if what they’re doing is wrong, but it might not be all that bad, you know?

The exercises on the following pages will put your students in the ethical bullseye of a number of cases. See how your students act, and then react.
Learning Activity: Students apply professional standards of ethics to determine whether a proposed business action is ethical or unethical.

Learning Objectives
1. Understand how ethics enters into the decision-making process of professionals.
2. Understand the characteristics embodied in actions that are deemed ethical actions.
3. Use the characteristics of ethical decision-making to determine whether business actions are ethical or unethical.

Assessment
Students will: (1) identify the characteristics embodied in ethical actions, (2) identify business actions as ethical or unethical using an ethical decision-making model, (3) identify the characteristic(s) that is violated, thus rendering an action unethical.

Academic Standard
“Describe how ethics affect business.” (NBEA)
“Describe the factors that define what is considered ethical business behavior.” (NBEA)
“Define a code of ethics, develop a code of ethics, and apply a code of ethics to various issues confronted by businesses.” (NBEA)

Business Skill
Professional Development and Civic Responsibility: CPAs must deal with confidential information free of personal bias and conflicts of interest. CPAs must act with integrity, independence, and objectivity in order to provide assurance to investors, the government, and the public at-large that the information they use to make business decisions can be relied upon with confidence.

Procedure
Distribute a copy of the Topic Overview to your students.
Discuss the concept of what constitutes an ethical versus unethical action. Compare and contrast the issue of legal and illegal behavior to ethical and unethical behavior.
Introduce and define the three characteristics—dependence, objectivity, integrity—that define ethical behavior for CPAs and the importance of CPAs acting in the highest ethical manner.
Emphasize the importance of proper ethical behavior in business and as a CPA as it relates to public perception, which may ultimately affect the career advancement of individuals and the financial performance of businesses.

Divide your class into teams to identify the business action as ethical or unethical and assign points for correct answers accordingly.
Total each team’s score and assess their character using the “Character Assessment Guide.”
Ethics are principles of good conduct that help people decide whether an action or decision is morally right or morally wrong. The most fundamental ethical principle is: “Do unto others as you would have them do unto you.” Known as the “Golden Rule,” this rule implies that an ethical person is concerned not only with themselves, but also with the well-being of others.

Despite the notion that the sole consideration is the “bottom line,” businesses are concerned with ethics. At a minimum level, businesses are concerned with acting in an ethical manner in order to protect themselves, avoid scandals, and stay free of government intervention which, in turn, can avoid the levying of fines and the assessment of penalties, if not imprisonment. At a higher level, however, businesses pay heed to the notion of proper ethical conduct since such conduct often defines another “bottom line,” which is not what you earn financially, but who you are. In light of today’s image conscious public, proper ethical conduct may add more to the bottom line than price hikes and cost-cutting measures.

Another common misconception is that laws and ethics are the same: “If it’s legal, it’s ethical.” Quite the contrary. In fact, an individual can be dishonest, untrustworthy, unfair and uncaring without ever breaking the law. Laws—rules of society—only outline minimal standards of what is proper. Laws do not always define or address proper ethical actions or behavior.

Proper ethical behavior is founded in the belief that it is imperative to distinguish between right and wrong. A Certified Public Accountant (CPA) abides by a code of ethics that all members of the profession must observe.

The principle source of information concerning the CPA’s professional ethical standards is the AICPA’s Code of Professional Conduct (Principles and Rules), which has been in existence for more than 100 years. Additionally, each state has its own regulatory body that sets professional and ethical standards that govern CPAs licensed to practice in that state.

Proper ethical behavior can be defined according to three basic characteristics: independence, objectivity, and integrity.

With regard to independence and objectivity, CPAs must be free of conflicts of interest both in appearance and in fact when providing public accounting services to clients. CPAs provide multiple services—auditing, financial planning, consulting, international, and technology services—to a variety of clients in a multitude of industries. Therefore, it is imperative that CPAs continuously assess their client relationships and public responsibilities.

Maintaining the highest degree of integrity is necessary to sustain and broaden the public’s confidence in CPAs and the accounting profession. Integrity requires CPAs to be honest and candid in their work and to maintain client confidentiality without seeking personal gain. Measured in terms of what is right and what is wrong, integrity is the benchmark against which all decisions and actions by a CPA must be assessed.

In order to act ethically, a CPA must be independent, objective and act with the highest degree of integrity. If a CPA violates any one of these characteristics, the action is deemed to be unethical.
Activities

Ethics and Professional Behavior

1. Jon Watson, CPA, accepts two round-trip tickets to Florida from a client of the firm he is employed with.

2. Julie McVoy, CPA, is seeking employment as a top-level accounting manager with a client for whom she is currently conducting an independent audit.


4. Andrew & Co., CPAs, performed auditing services for McMahon Financial Services Inc. last year. McMahon has yet to pay the fees for those services. McMahon has engaged Andrew & Co. to perform an audit of their financial statements for this year.

5. Joe has earned his CPA designation by passing the CPA Exam and meeting the education, experience and licensing requirements in his state. He has decided to pursue a career as a high school and college accounting instructor. In his search for a teaching position, Joe presents himself as a CPA by placing the “CPA” letters on personal business cards and stationery. In addition, as a part-time job, Joe continues to audit financial statements and prepare tax returns for clients that have engaged Joe based on the fact that he has informed the clients that he is a CPA.

6. The KML Company has engaged the firm of J. Ditkan, CPAs, to audit its financial statements and prepare its tax return. KML stated to Jodi, a partner with J. Ditkan, that they would pay Ditkan $250,000 if she would issue a favorable audit opinion of the financial statements and prepare the tax return so that they would receive a refund. In fact, if the tax refund is more than $100,000, KML has agreed to buy Jodi a convertible Mercedes-Benz. Otherwise, without a favorable audit opinion and tax refund, KML will only pay Ditkan $45,000.

7. Thomas, a CPA, was recently hired by a large Wall Street firm to assess the advantages and disadvantages of proposed mergers among Fortune 500 companies. As part of the terms of employment, Thomas has agreed not to invest in any of the companies he is researching, because to do so would be considered insider trading, which is illegal. Thomas has never acquired the stock of companies he is analyzing, but has on occasion strongly suggested to his brother-in-law, Richard, that he (Richard) might want to do so. In fact, Richard has taken Thomas’ “advice” and made $1 million in the New York Stock Exchange by buying and selling Thomas’ “suggested” stocks.

8. Jocelin, who is an accountant but not a CPA, has agreed to prepare a financial forecast and projection for the Dube Group. Jocelin has approached Nikki, a CPA, and offered her half of the fee—$50,000—from the Dube Group if she signs the financial report. Since Nikki is a CPA and Jocelin is not, Nikki’s signature, as opposed to Jocelin’s, would give the report more credibility.

9. Francis, a CPA with the accounting firm Norris & Co., attended a party and fundraiser at the Downtown Metropolitan Center. Francis, in his conversations with other guests, revealed that he is auditing Bendas, Inc., a prominent distributor of computer software.

10. J. Tater & Company, a manufacturer of high-tech computer equipment, is one of eight companies preparing contract proposals to supply foreign countries with the latest micro-computers. Each company will present their proposal to the United States Foreign Affairs Committee. In conversations with members of the committee, J. Tater’s chief financial officer, Melanie—a CPA—has mentioned the possibility of giving each member of the committee $25,000 if J. Tater is awarded the contract, which is worth $10 million.
Do the Right Thing

**FIRST**, for each of the business scenarios described, indicate whether the CPA’s action is ethical or unethical.

- **IF** you answer “ethical” and that is the correct answer, award your team **15 points**.
- **IF** you answer “unethical” and that is the correct answer, award your team **5 points**. **THEN** indicate the characteristic(s) of ethical conduct—objectivity, integrity, independence—that the CPA has violated. If you answer correctly, award your team an additional **10 points**. Incorrect answers receive zero additional points.
- **IF** you answer incorrectly, zero points are awarded.

**THEN**, total your team’s points to assess the character of your team members using the “Character Assessment Guide.”

Remember that CPAs must act with objectivity, integrity AND independence. If a CPA violates any one of the characteristics, his or her action is deemed to be unethical.

<table>
<thead>
<tr>
<th>CPA Scenario</th>
<th>CPA’s Action Ethical or Unethical</th>
<th>Characteristic(s) Conflict Objectivity • Integrity • Independence</th>
<th>Points</th>
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**Character Assessment Guide**

<table>
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<th>Points</th>
<th>Assessment</th>
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<tbody>
<tr>
<td>135 or more</td>
<td>A model professional!</td>
</tr>
<tr>
<td>120 to 134</td>
<td>Somebody you can definitely trust</td>
</tr>
<tr>
<td>105 to 119</td>
<td>A decent person</td>
</tr>
<tr>
<td>90 to 104</td>
<td>A shady character</td>
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<td>75 to 89</td>
<td>Somebody you can never trust!</td>
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<td>74 or less</td>
<td>A real, no-good *&amp;%#@!!</td>
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<td><strong>CPA Scenario</strong></td>
<td><strong>CPA's Action Ethical or Unethical</strong></td>
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The Crunch of Dirty Numbers

The following pages contain the numbers your students will need to investigate a crime. The same company, Wellsboro HVAC Corp., is represented three different ways, versions A, B, and C. Students should be provided with a calculator if they don’t already have one, and they should work in small groups, each group with a different data version than other groups nearby.

Before the information is handed out the students should be made aware of the various ways to disguise embezzlement. The information can be found on page 49.

Teacher Instructions:

1. Go over the different ways fraud can appear in a company. Information is on page 47.
2. Put students into small groups of two or three, and distribute the data sheet sets. Each set consists of biweekly payroll, a list of employees, and a profit and loss statement for October. Three versions of the data sheets are provided so each group cannot listen in on their neighbors and expect to succeed.
3. One person in each group should act as record keeper and list the group members names, the data version, and their findings. This is the sheet they’ll hand in and be graded on.
4. Tell the students they’ve been asked to look over the books for any sign of fraud. They should take nothing for granted; the data is exactly as the company comptroller printed it out. Mention the version each group has may not contain any errors, but at least one data set does. Everything they need to succeed or fail is in front of them. Either verify the numbers are clean or find the fraud.

NOTE: All three versions of the data will indicate fraud as follows:

- In version A, Matt Seil’s last day was 1/7/09, but he is still receiving a bimonthly paycheck. Also, expenses for October should total $70,888, not the $81,656 reported. These two instances of fraud are costing the company $23,916 every month.
- In version B, Steve Romanoff’s last day was 8/9/11 but he still receives a bimonthly paycheck. Also, expenses for October should total $70,888, not the $86,122 reported. These two instances of fraud are costing the company $28,382 every month.
- In version C, Steve Romanoff’s last day was 6/25/00 but he still receives a bimonthly paycheck. Also, expenses for October should total $70,888, not the $91,656 reported. These two instances of fraud are costing the company $33,916 every month.
- Exactly who is behind the fraud is beyond the scope of this exercise, but the guilty party or parties would be determined with further investigation.
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<th>Last Name</th>
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<th>Zip</th>
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Notes:
- **DoH** = Date of Hire
- **LD** = Last Day
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<tr>
<th>Last Name</th>
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<th>Address</th>
<th>City</th>
<th>Zip</th>
<th>Gross Pay</th>
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**Totals**: $34,880.00 $9,766.40 $25,113.60
Wellsboro HVAC Corp. Profit and Loss Statement for October

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<td>Service calls</td>
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<td><strong>Total income</strong></td>
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<table>
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**Net Income** $96,122.00
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**LD = Last Day**
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### Wellsboro HVAC Corp. Profit and Loss Statement for October

#### Income
- New equipment sales: $112,656.00
- Service calls: $65,122.00
- Total income: $177,778.00

#### Expenses
- New equipment sales: $112,656.00
- Office supplies: $202.00
- Utilities: $3,512.00
- Advertising: $10,222.00
- Raw materials: $11,003.00
- Service parts: $1,511.00
- Fuel: $3,611.00
- Postage: $105.00
- Software: $258.00
- Equipment leasing: $899.00
- Rent: $3,100.00
- Bank fees: $160.00
- Phone: $99.00
- ISP: $49.00
- Permits: $3,333.00
- Insurance: $1,044.00
- Payroll: $34,880.00
- Total expenses: $91,656.00

#### Net Income
$86,122.00

### Version B

**Net Income**

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**Total expenses**

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**Net Income** $86,122.00
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Notes:
- **DoH** = Date of Hire
- **LD** = Last Day
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<th>Zip</th>
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</table>

**Totals:**

- Gross Pay: $34,880.00
- Deductions: $9,766.40
- Net Pay: $25,113.60
### Wellsboro HVAC Corp. Profit and Loss Statement for October

**Income**

<table>
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<tr>
<th>Description</th>
<th>Amount</th>
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**Expenses**

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</tr>
<tr>
<td>Equipment leasing</td>
<td>$899.00</td>
</tr>
<tr>
<td>Rent</td>
<td>$3,100.00</td>
</tr>
<tr>
<td>Bank fees</td>
<td>$160.00</td>
</tr>
<tr>
<td>Phone</td>
<td>$99.00</td>
</tr>
<tr>
<td>ISP</td>
<td>$49.00</td>
</tr>
<tr>
<td>Permits</td>
<td>$233.00</td>
</tr>
<tr>
<td>Insurance</td>
<td>$1,044.00</td>
</tr>
<tr>
<td>Payroll</td>
<td>$34,880.00</td>
</tr>
<tr>
<td><strong>Total expenses</strong></td>
<td><strong>$91,656.00</strong></td>
</tr>
</tbody>
</table>

**Net Income**

- $86,122.00
There are many types of misappropriations of assets, but the most common are the following:

1. Stealing cash by diverting cash receipts, manipulating accounts receivable postings (lapping), altering bank deposits, stealing or forging checks, stealing petty cash, etc.
2. Creating fictitious vendors or overstated vendor invoices.
3. Stealing inventory or equipment by diverting goods received or sold, or by making unauthorized scrap sales.
4. Taking kickbacks.
5. Abusing travel and entertainment reimbursements to include personal items.
6. Creating ghost employees or overstating hours worked.

The forensic accountant must be familiar with the classic types of fraud, so the patterns will be recognized when observed in the course of the engagement. Some of the more common varieties of frauds are set forth below:

Employee Fraud commonly involves one or more of these devices:

1. Cash schemes, such as skimming of receipts, under-rings on registers, and the fictitious issuance of credit memos or discounts.
2. Accounts receivables schemes, such as lapping (stealing collections, then using later collections on other accounts to credit the account stolen from), bogus receivables writeoffs, and fictitious sales.
3. Inventory fraud, including theft, embezzlement of proceeds from scrap or other miscellaneous sales, and fictitious purchases or other cost elements used to disguise separate theft of assets.
4. Purchasing fraud, including fictitious invoices paid to confederates, kick back schemes with corrupt vendors, and duplicate payments.
5. Payroll schemes, such as ghost payrollers, theft of tax withholding, and abuse of time record keeping.
6. Expense reimbursement fraud, typified by payment of personal expenses.

Management fraud involves matters that most commonly result in financial statement restatements are the following:

1. Deliberate mis-classifications in the balance sheet.
2. Infringement of copyrights, patents, other intellectual property.
3. Theft of trade secrets, commercial espionage.
4. Bribery or other corruption of competitors’ employees.
5. Fraud perpetrated against customers:
6. Deliberate mis-weighing, mis-counting, etc., of delivered goods.
7. Price fixing/collusion with competitors.
8. Quality substitution, defective products delivered to customers.
10. Fraudulent claims for refunds.
11. Fraudulent loss claims.
12. Fraud perpetrated against government agencies:
13. False or fraudulent tax returns (income, property, etc.)

If you’re a visual learner check out the chart on the next page.

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Editor’s note: This image looks better printed at 300 dpi or better than it does on the screen.

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FORENSIC DATABASE

Better than a general search engine, the unique NCSTL database instantly pinpoints focused results about forensic science & criminal justice topics. Learn more about the database & about NCSTL.
Barry Jay Epstein, Ph.D., CPA, CFF, has worked as a forensic accountant for many years, and wrote a series of guides to help other fraud examiners be aware of potential pitfalls, ways people try to hide evidence, and well thought out instructions for safeguarding organizations ripe for fraud. In one of these papers, “SAS No. 99: Auditors’ Responsibility For Detection of Fraud” (Roosevelt University, Topics in Business Forensics, 2011), Dr. Epstein offers suggestions for conducting interviews with employees at a business under review for fraud. Teachers already know about many of these tell-tale clues to when a person is lying, but we wanted to print them just in case you haven’t had much experience with an adolescent who may not be telling the truth. We know, the idea of a teenager lying to you is about as far-fetched as Elvis in a UFO, but, hey, anything is possible.

Understanding the physiology of deception

i. While auditors will never be expert at detecting deception by skilled interviewees (apart from seeking, and failing to find, corroboration for the matters which were subject to inaccurate statements), there are some tell-tale signs to watch for. (This is not to suggest that a management interview is necessarily akin to interrogating a criminal suspect, but the requisite attitude of professional skepticism demands that these risk elements be given some weight.)

ii. Verbal clues include the following:

• Changes in speech patterns – During deception, people often speed up or slow down their speech, or speak louder. There may be a change in the voice pitch; as we become tense, our vocal chords constrict. People also tend to cough or clear their throats during deception.

• Repetition of the question – Liars frequently repeat questions to gain more time to think of answers. Deceptive individuals will say, "What was that again?" or use similar language.

• Comments regarding interview – Deceptive people often complain about the physical environment of the interview room, such as "It’s cold in here." They also sometimes ask how much longer the interview will take.

• Selective memory – Deceptive people often have a fine memory for insignificant events, but when it comes to the important facts, they "just can’t seem to remember."

• Making excuses – Dishonest people frequently make excuses about things that look bad for them, such as "I’m always nervous; don’t pay any attention to that." Or they might say, "Everybody does it."

Copyright 2011 Barry Jay Epstein. Used with permission. All rights reserved.
• Oaths – On frequent occasions, dishonest people will add what they believe to be credibility to their lies by use of emphasis. That is, they use such expressions as "I swear to God," or "Honestly" or "Frankly" or "To tell the truth." (However, these are also figures of speech used by many honest persons.)

• Character testimony – Liars often request that interviewers "Check with my staff," or "Talk to the department head." This is done to add credibility to the false statement, and is based on assumption that corroboration will not be sought for such earnestly made assertions.

• Answering with a question – Rather than deny the allegations outright liars frequently answer with questions like "Why would we do something like that?"

• Overuse of respect – Some deceptive people go out of their way to be respectful and friendly; management may appear overly solicitous of the interviewing auditor, for example.

• Increasingly weaker denials – When honest people are accused of something they haven’t done, they often become angry or forceful in their denial. The more they are accused, the more forcible in their denial. Dishonest people, on the other hand, tend to "deny weakly." As an analog, management being quizzed about controls over assets may respond to follow-up questions (in context of an actual theft occurrence) with less confidence over efficacy of procedures, after first insisting that theft was "isolated incident."

• Specific denials – Dishonest people are more likely to be specific in their denials. An honest person offers a simple and resounding "NO," whereas dishonest people "qualify" the denial: "No I did not record an October sale of $150,000 on September 30." (Perhaps it was recorded, also improperly, on September 29.) Other qualified denial phrases include "To the best of my memory," and "As far as I recall," or similar language.

• Fewer emotionally charged words – Liars often avoid emotionally provocative terms such as "crime," "lie," or "cooked the books." Instead they prefer "soft" words.

• Refusal to implicate other suspects – Both honest respondents and liars have a natural reluctance to implicate others involved in misdeeds. However, liars frequently continue to refuse to implicate possible suspects, no matter how much pressure is applied by the interviewer. Why? Because doing so narrows the circle of suspicion.

• Tolerance for shady conduct – Dishonest people typically have tolerant attitudes toward miscreant conduct. For example, if the interviewer asks, "What should happen to the District Manager if he were caught cooking the books?" honest people will say, "They should be fired/prosecuted." Dishonest people on the other hand, are much more likely to reply, "How should I know?" or, "He is one of our best employees, we need to give him a second chance."

• Reluctance to terminate the interview – Dishonest people are generally more reluctant to terminate interviews. They want to convince the interviewers that they are not responsible. Honest people generally have no such reluctance.

• Feigned unconcern – Dishonest people often try to appear casual and unconcerned and frequently adopt an unnatural slouching position. Additionally, they may react to questions with nervous or false laughter or feeble attempts at humor. Honest people typically are very concerned about being
suspected of wrongdoing, and treat the interviewer’s questions seriously. In a fraud risk interview, management should be similarly serious-minded.

iii. Nonverbal clues include the following:

- Full body motions – When asked sensitive or emotional questions, dishonest people typically change posture completely – as if moving away from the interviewer. Honest people frequently move toward the interviewer when questions are serious.

- Anatomical physical responses – Anatomical physical responses are our body’s involuntary reactions to fright, such as increased heart beat, shallow or labored breathing, or excessive perspiration. These reactions are typical of dishonest persons accused of wrongdoing.

- Illustrators – "Illustrators" are motions made primarily with hands to demonstrate points when talking. During non-threatening questions, illustrators are done at one rate. During threatening questions, illustrators may increase or decrease. Interviewers should be alert during preliminary “small talk” phase of interview, to develop baseline expectations of interviewee behaviors.

- Hands over the mouth – Frequently dishonest people cover their mouths with their hand or fingers during deception. This reaction goes back to childhood, when many children cover their mouths when telling a lie. It is done subconsciously to "conceal" the statement.

- Manipulators – "Manipulators" are motions such as picking lint from clothing, playing with objects such as pencils, or holding one’s hands while talking. Manipulators are displacement activities to reduce nervousness.

- Fleeing positions – During the interview, dishonest people often posture themselves in a "fleeing position." That is, the head and trunk may face the interviewer, but the feet and lower portion of the body point toward the door. This is an unconscious effort to flee.

- Crossing the arms – Crossing one’s arms over the middle zones of the body is a classic defensive reaction to difficult or uncomfortable questions. A variation is crossing the feet under the chair and locking them. These crossing motions occur mostly when being deceptive, as research has shown.

- Reaction to evidence – Although they try to appear outwardly unconcerned, guilty people have a keen interest in implicating evidence. Therefore, dishonest people often look at documents presented by interviewers, attempt to be casual about observing them, and then shove them away, as if wanting nothing to do with the evidence. In the context of a management interview, there may be a similar dismissal of information presented (even verbally), such as unexpected changes in gross margins that might suggest financial reporting manipulations.

- Lip movements – Genuine smiles usually involve the whole mouth; false ones are confined to the upper half. In deception, people tend to smirk rather than to smile. Most actions that interrupt the flow of speech are stress-related. Examples include closing the mouth tightly, pursing the lips, covering the mouth with the hand, lip and tongue biting, licking the lips, and chewing on objects.
What teachers are saying

- “I am delighted to have found your website. It brings all the content we teach together in such a real-life way. It’s fantastic! Thank you for an amazing resource!”

- “I found this a fascinating site. I went through the first case because I am assigning it to my students as part of a CSI unit. I can’t wait to do the other two cases. Thank you for making science fun.”

This work was supported in part by a grant from the National Science Foundation to the Fort Worth Museum of Science and History.
The **Myths** of Circumstantial Evidence

By Ted Yeshion, Ph.D.

“Circumstantial evidence is a very tricky thing,” answered Holmes thoughtfully. “It may seem to point very straight to one thing, but if you shift your own point of view a little, you may find it pointing in an equally uncompromising manner to something entirely different.”

Sir Arthur Conan Doyle

Evidence is any physical item or information observed or gathered by crime scene investigators that may prove to be relevant to an investigation. The major role evidence plays in criminal investigations is to associate a suspect with a victim or with the scene of a crime. In criminal cases, the critical facts that require proof are whether a crime actually occurred and if the accused was responsible for having committed that crime. Evidence also plays a crucial role in the elimination of suspects and in the exoneration of the wrongfully convicted.

Physical evidence (also referred to as real or direct evidence) is that which is tangible and can be observed with any of the five senses. Examples of physical evidence are blood, hair, fiber, fingerprints, shoe/tire track impressions, etc.

Generally, evidence can be classified into two categories: direct and circumstantial, although testimonial and documentary evidence are also important types of evidence used in court proceedings. Direct evidence provides proof about some fact in question without requiring jurors to make any assumptions or to draw inferences. It is evidence that clearly speaks for itself and can be observed with any of the five senses. Examples of physical evidence are blood, hair, fiber, fingerprints, shoe/tire track impressions, etc.

Circumstantial evidence has a reputation for generally being weaker and less valid evidence than direct evidence. It is interesting and necessary, however, to emphasize that it is simply incorrect to assume that direct evidence is always stronger or more convincing than circumstantial evidence. Aside from scientific evidence, other examples of circumstantial evidence that may imply guilt include the defendant’s motive or opportunity to commit the crime, whether the defendant had resisted arrest, or if any suspicious behaviors were demonstrated. Unlike the incorrect examples perpetuated by television shows, movies, and novels, a majority of convictions are based solely on circumstantial evidence if for no other reason than this type of evidence...
is more commonly encountered at crime scenes than direct evidence. It is also important to note that direct evidence such as eyewitness identification and confessions given by suspects are fraught with potential problems as demonstrated by the investigations into 300-plus exonerations of wrongfully convicted individuals by the Innocence Project. The leading cause of wrongful convictions, especially in sexual assault cases is eyewitness misidentification, a prime example of direct evidence. Eyewitness identification has proven to be unreliable in approximately 75% of the 300 DNA exoneration cases, yet remains very persuasive as direct evidence for judges and juries. False confessions given by defendants, and incriminating statements made by jailhouse snitches and others have been found to occur in approximately 25% of all the DNA exoneration cases to date. Once jurors hear this type of direct testimony, it is nearly impossible to un-ring that bell.

Forensic scientists and investigators also divide evidence into further categories to include those demonstrating class and individual characteristics. Evidence with class characteristics help narrow the ability to identify an object or person to fewer possibilities and can also be used to exclude an object or person with absolute certainty. Examples of such evidence are blood types, individual fibers, microscopic examination of hair, and single-layer paint fragments. Such evidence cannot be used to link the physical evidence to a common origin to a high degree of scientific certainty. Evidence with individual characteristics, however, demonstrate unique qualities that can be used to link the physical evidence to one person or object to a high degree of scientific certainty. Examples of this type of evidence are the comparison of a latent fingerprint to a known inked impression with matching ridge characteristics, DNA profiles (with the exception of identical twins), bullets and tool mark impressions with matching striation markings, handwriting, comparison of wear patterns observed in footwear and tire track impressions, and when the edges of a broken object can be reconstructed in the manner of a jigsaw puzzle.

Although varieties of evidence having class or individual characteristics are still categorized as circumstantial, the relevant value of the evidence and therefore the weight given to the evidence by jurors will vary when presented during a criminal trial. The exclusionary power of each of these types of evidence is equally important in seeking justice as it can demonstrate that the wrong person was detained, arrested, or convicted.

The proper recognition, documentation, reconstruction, submission of relevant evidence, and preservation of evidence is critically important in all crimes scene investigations. This is not only necessary for current cases under investigation and those going through the trial process, but also to preserve evidence for those who claim they were wrongfully convicted. In these latter cases, remaining DNA evidence can be used to support or refute claims of innocence. When such evidence is not available, the truth may never be known and justice will not have been served.

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**Quick Quiz**

Evidence Type, Direct or Circumstantial (D or C)

1. A receipt showing a gun purchase by the suspect the day before the victim is shot to death.
2. An eyewitness who claims to have seen the shooting.
3. A ballistics expert who says the marks on the deadly bullet match those test-fired from the suspect’s gun.
4. An eyewitness who heard the killer and victim arguing the day of the shooting.
5. Gunshot residue on the suspect’s hands.
6. Ammunition in the suspect’s house of the same brand as the deadly bullet.
7. A surveillance video of the shooting.
8. The victim’s girlfriend who says she was on the phone with the victim seconds before the shooting who claims she heard the victim say, “He’s got a gun,” without saying who “He” is.
9. The victim’s girlfriend who says the victim told her about the suspect threatening him with death the day before the shooting.
10. The suspect’s girlfriend who says an hour after the shooting took place her boyfriend showed up at her house upset about something.

**Answers on page 24**
The popularity of scripted television programs like CSI is a cultural phenomenon. But the press coverage regarding the “CSI Effect” or “CSI Syndrome” has not been totally complimentary.

In fact, most of it has been relatively discouraging. Television has always had that kind of effect on the minds of the millions. Whenever contemporary programs capture the imaginations of the public, they invariably create a thirst for further information, resulting in an upsurge in interest and sales of associated products and technologies.

In the case of the CSI Effect, the obvious cure for television’s dose of forensic misinformation or exaggeration is an equal abundance of proper education. It is not surprising that universities have seen an increase in students who are enrolling in forensic-science and other related science programs. Along with the increase in education being offered, there needs to be an increase in available positions for the people receiving the training. Otherwise, the people who graduate will be forced to find other jobs. If available positions are not made available to new graduates, eventually general information or word of mouth will quell the interest in this specialized education. In the meantime, however, students continue to seek an education in specialized forensic fields, and subsequently seek jobs with law enforcement and forensic laboratories.

For a number of reasons, there are more people involved in forensic fields today than there were ten years ago. Developing technologies, miraculous discoveries, and an unrelenting need for ways to present courtroom evidence have brought forensic sciences and tech-nologies to the forefront of more than the popular television shows. Enterprising individuals and companies have taken the ball and run with it. Developments in technology and training were needed and welcomed by judges, attorneys, engineers, and the public.

So you want to be a forensic photographer

One field that has captured the imagination and enthusiasm of a growing group of talented individuals is forensic photography. It is a likely 21st century goal for people who have taken photos since they were youngsters and have been told they “have a good eye” for photography. Whatever the reason, the throng is there and looking to snap up the available jobs and run out to accident and crime scenes to capture prize- and trial-winning images.

How difficult could it be? Well, the people taking the time to read this article know the answer to that.

Take a closer look at what is involved: A photographer is a person who takes photographs using a camera. A professional photographer uses a camera to earn money. A forensic photographer is tasked with the production of photographs meant for court that record evidence, crime scenes, and victims of crimes and accidents as clearly, objectively, and accurately as possible.

Forensic photographers on television shows like CSI are depicted glamorously. In truth, their work may not always be glamorous—but it is a fascinating area of work suitable to dedicated photographers with excellent technical skills and meticulous working practices.

The availability of professional forensic jobs was small until recently, when technological and scientific advances developed and provided new tools to substantially improve
the efficiency of law enforcement in solving crimes. As a consequence, many law enforcement agencies and other institutions expanded their resources and facilities in order to upgrade their abilities in the forensic sciences.

**Advice for the would-be forensic photographer**

Personally, I field a steady stream of inquiries from people who are looking for advice about finding positions as forensic photographers and crime scene investigators. Some of them are already professional photographers who have found that the excitement of documenting weddings is wearing thin. Others have gone to school and received degrees in photography, forensic science, or criminal justice, and now are ready to go out and work. Sadly, the number of jobs available is not enough to satisfy the interest.

Would-be forensic photographers ask me, “How did you get your job as a forensic photographer?” I reply that I have a driven personality and I trained myself to excel in macrophotography, processing, and analytical thinking. I also managed a “can-do” attitude. Then I watched everywhere, asked everyone, jumped at every opportunity, worked very hard, and learned every day from my experiences.

My advice today is to talk to anyone you know who may have a connection that could help you. Most often, your big break is a matter of who you know and being in the right place at the right time. Do not ever underestimate the value of persistence, research, and old-fashioned legwork. You truly do not see these jobs popping up too often in the want ads.

For people who are interested in forensic photography but have no forensic background, there are wonderful courses and conferences available through associations such as the Evidence Photographers International Council (EPIC) and the International Association for Identification (IAI), as well as a number of colleges and universities worldwide. Some of these courses are now offered via the Internet, so anyone anywhere may attend.

Another popular question is, “Does a person need a degree in forensic science or criminal justice to become a uniformed police officer?” And the answer is a resounding “No”. Institutions of higher learning do not necessarily teach policing. Criminal justice does not always include a section about how to be a police officer. It does include the history of policing, trial law, the constitution, and so on. Uniformed officers need to know how to shoot and how to fight, and they need to understand that their number one job is to go home alive at the end of their shift.

Crime-scene personnel do not necessarily need to be sworn police officers. The number of sworn versus civilian staff varies by each agency’s polices and practices.

If a career in law enforcement is what you really want, check out the hiring practices of the department where you want to live and see if you qualify. Most hiring processes will include a written exam, drug screen, medical exam, psychological exam, and background investigation. If hired—and before you will be allowed to specialize—you must start as an entry-level officer. After a probationary period, you may be able to apply to a specialized unit as opportunities arise. Uniformed officers could rank up quicker if they possess a degree in crime-scene investigation or forensic science.

**Forensic photography jobs outside the world of law enforcement**

If you are not interested in a job with a law enforcement agency, there are other alternatives for photographers who are looking for jobs related to forensic science or criminal justice.

Forensic photographers can also offer their services to individuals and attorneys involved in civil law and other legal cases. People working in the areas of science, computers, economics, and business can learn to detect, collect, evaluate, and prepare evidence for use in civil and criminal courts.

In summary, properly trained forensic evidence photographers will better understand and implement forensic techniques. Applicants for any forensic-related position will stand a better chance in a competitive market when they have a higher level of training. Added expertise also helps to provide better prosecutions, reduces court overloads because of inexact evidence, and—in general—makes cases run faster and more smoothly.

**About the Author**

Sanford Weiss is the author of a book published in 2009 by Pearson, Prentice Hall. The title is Forensic Photography: The Importance of Accuracy. To contact Weiss for more information about this topic, send an e-mail to: sandyweiss2009@gmail.com
The Holidays will be here before you know it.

Tell ‘em you want our back issues CD.

admin@theforensicteacher.com

Are you on Facebook?

If you like our magazine find us there and you’ll get updates, all the latest developments, and not have to worry about your spam filter keeping us from reaching you with our emails.
One of the best things about teaching forensics is watching your students mature intellectually. Benjamin Bloom first published his taxonomy of thinking skills in 1956. As teachers we have an obligation to help students learn to use their minds in more powerful ways. The chart below lists suggestions for you to push your students mentally to higher places. Give them a try; often the difference between an easy forensic assignment and a challenging one is what you ask of your students.

<table>
<thead>
<tr>
<th>Level</th>
<th>Type of Activity or Question</th>
<th>Verbs Used for Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest level</td>
<td>Knowledge</td>
<td>define, memorize, repeat, record, list, recall, name, relate, collect, label, specify, cite, enumerate, tell, recount</td>
</tr>
<tr>
<td></td>
<td>Comprehension</td>
<td>restate, summarize, discuss, describe, recognize, explain, express, identify, locate, report, recall, review, translate</td>
</tr>
<tr>
<td></td>
<td>Application</td>
<td>exhibit, solve, interview, simulate, apply, employ, use, demonstrate, dramatize, practice, illustrate, operate, calculate, show, experiment</td>
</tr>
<tr>
<td>Higher levels</td>
<td>Analysis</td>
<td>interpret, classify, analyze, arrange, differentiate, group, compare, organize, contrast, examine, scrutinize, survey, categorize, dissect, probe, inventory, investigate, question, discover, text, inquire, distinguish, detect, diagram, inspect</td>
</tr>
<tr>
<td></td>
<td>Synthesis</td>
<td>compose, setup, plan, prepare, propose, imagine, produce, hypothesize, invent, incorporate, develop, generalize, design, originate, formulate, predict, arrange, contrive, assemble, concoct, construct, systematize, create</td>
</tr>
<tr>
<td></td>
<td>Evaluation</td>
<td>judge, assess, decide, measure, appraise, estimate, evaluate, infer, rate, deduce, compare, score, value, predict, revise, choose, conclude, recommend, select, determine, criticize</td>
</tr>
</tbody>
</table>

Chart courtesy of Dr. Alicia T. Wyatt, McMurry University, Abilene, TX
Below are only some of the great training offered by the American Academy of Forensic Science’s website (www.aafs.org). Please note: all email and website links are active.

October 2013

8-10
Crime Scene Photography - Phase 1 This course will be held at Sirchie’s facility in Youngsville, NC. CONTACT: (800) 356-7311 www.sirchie.com/training/training-programs/crimescene-photography-phase1.html

14-18
Blood Evidence Students will learn stain pattern, identification of stains, characteristic of flight, chemical and light source applications, collection techniques, beginning reconstruction techniques, and documentation. This is an IAI Approved Course. Cost: $895.00* Contact Debbie Mongiardo CSI Academy of Florida Alachua, Florida (north of Gainesville) Debbie@csiacademyflorida.com 386-518-6300 www.CSIAcademyFlorida.com

21-25
Intro to Crime Scene Processing for Law Enforcement To be held at the CSI Academy of Florida, 12787 US Highway 441 Alachua FL 32615. The CSI Academy of Florida is just north of Gainesville, approximately two hours from Jacksonville, Orlando, Tampa, and Tallahassee. For more information visit: http://www.csiacademyFlorida.com

30-Nov 1
Human Remains Field Recover: Forensic Anthropology and Archeological Field Methods This course is designed for persons that want to enhance their knowledge of forensic recovery techniques in an outdoor context. This is an IAI Approved Course. Cost: $895.00* Contact Debbie Mongiardo CSI Academy of Florida Alachua, Florida (north of Gainesville) Debbie@csiacademyFlorida.com 386-518-6300 www.CSIAcademyFlorida.com

November 2013

4-6
Introduction to Shooting Incident Reconstruction Location: East Texas Police Academy, Kilgore, TX For registration information, contact Forensic Training & Consulting, LLC E-mail: (kprwitz@aol.com) Phone: (903) 723-3612

4-8
Death Investigation This is an IAI Approved Course. Cost: $895.00* Contact Debbie Mongiardo CSI Academy of Florida Alachua, Florida (north of Gainesville) Debbie@csiacademyFlorida.com 386-518-6300 www.CSIAcademyFlorida.com

4-8
10th Virtopsy Course Institute of Forensic Medicine, Winterthurerstrasse 190/52 8057 Zurich Switzerland For more information: www.virtopsy.com

11-12
Crime Scene and Shooting Incident Reconstruction Seminar World Renowned Forensic Scientist, Dr. Henry Lee, Returns to Mason for Crime Scene Seminar Enhance your Investigative Knowledge and Reconstruction Skills Location: Fairfax, VA The process of reconstructing a death scene or shooting incident is only of value if conducted properly within the realms of scientific principles, logic analysis, and forensic techniques conducted by a qualified expert. The attention to high profile cases naturally lends itself to reconstruction but it is often incorrect or an incomplete process. The concepts and essentials of shooting reconstruction will be illustrated with a focus on the analysis of actual shooting cases. For more information or to register, call 703-993-8335. http://www.ocep.gmu.edu/programs/legal/cold_case.php

December 2013

2-6
Human Remains Field Recovery: Forensic Anthropology and Archeological Field Methods This course is designed for persons that want to enhance their
Going On?

knowledge of forensic recovery techniques in an outdoor context. This is an IAI Approved Course. Cost: $895.00 Contact Debbie Mongiardo CSI Academy of Florida Alachua, Florida (north of Gainesville) Debbie@csiacademyflorida.com 386-518-6300 www.CSIAcademyFlorida.com

9-13 Basic Bloodstain Pattern Analysis Workshop Presented by the Specialized Training Unit at the Miami-Dade Public Safety Training Institute in Doral, FL CONTACT: Toby L. Wolson, MS, F-ABC Miami-Dade Police Department Forensic Services Bureau 9105 N.W. 25th St. Doral, FL 33172 (305) 471-3041 or twolson@mdpd.com

9-13 Blood Evidence Students will learn stain pattern, identification of stains, characteristic of flight, chemical and light source applications, collection techniques, beginning reconstruction techniques, documentation, Field training exercises will include impact angle determinations, how forceful impacts cause blood distribution patters as well as chemical enhancement and documentation. This is an IAI Approved Course. Cost: $895.00* Contact Debbie Mongiardo CSI Academy of Florida Alachua, Florida (north of Gainesville) Debbie@csiacademyflorida.com 386-518-6300 www.CSIAcademyFlorida.com

16-20 Introduction to Crime Scene Investigation This one-week program is designed for individuals who want to learn an overview of the techniques of crime scene investigation. Field Training Exercises will include photography as well as documentation of mock crime scenes and evidence collection. This program is ideal for individuals in law enforcement looking to enhance their crime scene skills or individuals new to the field. This is an IAI Approved Course. Cost: $895.00* Contact Debbie Mongiardo CSI Academy of Florida Alachua, Florida (north of Gainesville) Debbie@csiacademyflorida.com 386-518-6300 www.CSIAcademyFlorida.com

FEBRUARY 2014

3 Forensic Facial Reconstruction Sculpture With Karen T. Taylor To be held at the Forensic Anthropology Center at Texas State University - San Marcos CONTACT: Sophia Mavroudas (512) 245-1900 FACTS@txstate.edu www.txstate.edu/anthropology/facts/workshops

17-21 Math and Physics of Bloodstain Pattern Analysis Workshop presented by the Specialized Training Unit at the Miami-Dade Public Safety Training Institute, Doral, Florida. For information contact: Officer Rosa Holtz Miami-Dade Public Safety Training Institute Specialized Training Unit, Bldg. 300 9105 N.W. 58th St. Doral, FL 33178 Voice: 305-715-5022 Fax: 305-715-5107 E-mail: rholtz@mdpd.com

25-27 5th International Conference on Current Trends in Forensic Sciences, Forensic Medicine & Toxicology Organized by Indian Association of Medico-Legal Experts (Regd), New Delhi, India & Institute of Education and Research, Noida, Uttar Pradesh Venue: The International Centre Goa Dr. E. Borges Road, Dona Paula Goa 403004 India All information is available at our conference website http://www.iameleconf.in

March 2014

3-7 Bloodstain Pattern Analysis Workshop Presented by the Specialized Training Unit at the Miami-Date Public Safety Training Institute, Doral, Florida For Information contact: Toby L. Wolson, MS, F-ABC, Criminalist Supervisor Miami-Date Police Department Forensic Services Bureau 9105 N.W. 25th Street Doral, FL 33172-1500 Phone (305) 471-3041 Email: twolson@mdpd.com

Do you or your organization have a workshop, seminar, conference, training opportunity, or announcement you’d like to share and have included free? Please email us at admin@theforensicteacher.com and tell us about it!
Nathan Teklemariam and Carson Rinehart of Fresno, California, were recently arrested breaking into a car and stealing drugs. It seems the two discussed their recent criminal activity after one of their cellphones accidentally dialed 911. The dispatcher listened to their conversation for over half an hour before alerting authorities to their exploits and location. After a cop pulled them over they were incredulous when he told them they’d dropped a dime on themselves, something they didn’t know could happen. Score one for butt-dialing.

Wesley Baxter, 24, of Hubert, North Carolina thought he had everything covered when he decided to rob a gas station. He drove up on a motorcycle wearing a black ski mask and threatened a customer with a screwdriver before running from the store with an undisclosed sum of cash from the register. After he left, the attendant called 911 and an Onslow County Sheriff’s deputy apprehended him soon after, Baxter still wearing his ski mask. In his zeal to be both efficient and safe Baxter had taken the extra precaution of wearing the ski mask over his motorcycle helmet.

Tiffany Evans, 20, of Springfield, Massachusetts, was pulled over after she allegedly ran a red light. She’d just gotten off her job at a local strip club and was dressed in her work clothes. Since her garment consisted of less material found in the average handkerchief, when the officer asked her to step out of the car 47 bags of heroin easily fell to the pavement.

Police in Ireland stumbled onto a monster marijuana operation and were excited about breaking up what appeared to be a $160,000 crop. The outlaw horticulturists, none of which were present when police raided the location, appeared to have spent months watering, fertilizing, pruning, and showering love via MiracleGro and heat lamps onto about 150 marijuana plants. Unfortunately, the police learned a botany lesson the hard way when they examined the contraband, a lesson apparently lost on the crooks: plants come in two varieties, male and female. THC, the active drug in marijuana is only produced by the female pot plant. The plants at the center of this story were all male. Street value? Zero.

When Mario Garcia and Domingo Garcia-Hernandez decided to rob a busy restaurant in Chicago they pulled a gun on the owner and demanded cash and food. The owner, thinking quickly, told the two he was too busy to comply and asked them to return in 30 minutes. When they returned he said he needed to go into the office to get the money and asked them to wait at the hostess stand. The police arrived minutes later and arrested the surprised pair.

Maxi Sopo was living high on the hog in Cancun, Mexico after defrauding an American credit card company for $200,000, and not being shy about sharing how proud of himself he was. In yet another tale of predictable, yet inevitable Facebook karma, he shared photos and posts with everyone he knew. One man he friended was a cop who moonlighted at the Seattle nightclub Sopo used to work at. The cop became curious about his old acquaintance’s lavish lifestyle, made a couple phone calls, and the Mexican police picked up Sopo the next day for extradition back to the US.
More stupid criminals; these guys are priceless.

Click on the cameras below to see the movies (internet connection required).