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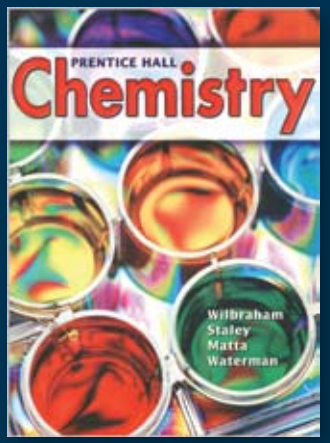

Program: Chemistry SE, Grade 10

Scope: Full-service content development for new SE; page layout, photo research, tech art creation, commissioning of illustrations, creation of prototype for a 45-page Elements Handbook EM section, design feature pages, and composition.

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Program: Chemistry SE, Grade 10

Scope: Full-service content development for new SE; page layout, photo research, tech art creation, commissioning of illustrations, creation of prototype for a 45-page Elements Handbook EM section, design feature pages, and composition.

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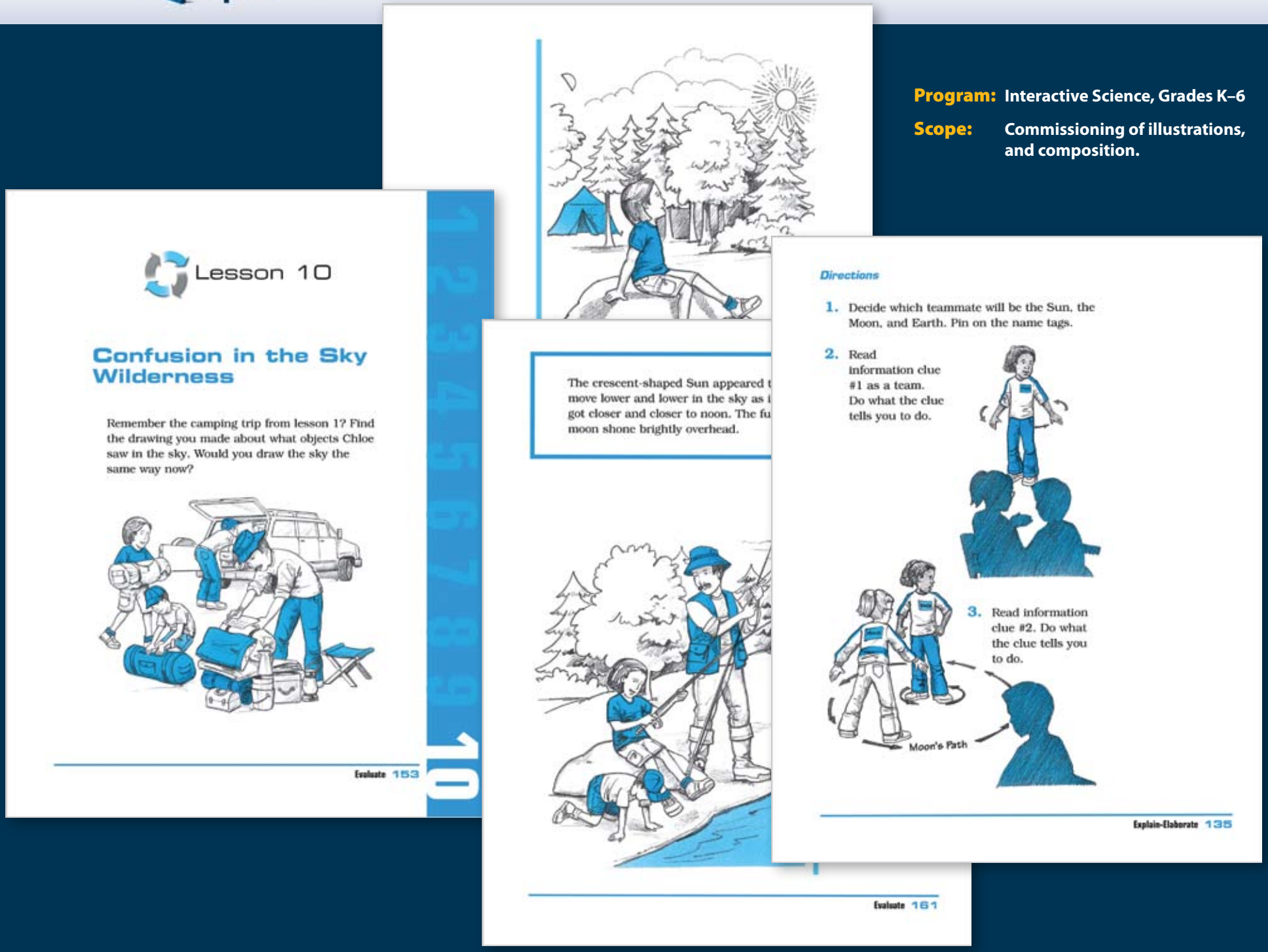
Program: Interactive Science, Grades K–6

Scope: Commissioning of illustrations, and composition.



Lesson 10

Confusion in the Sky Wilderness

Remember the camping trip from lesson 1? Find the drawing you made about what objects Chloe saw in the sky. Would you draw the sky the same way now?

Evaluate 153

The crescent-shaped Sun appeared t
move lower and lower in the sky as i
got closer and closer to noon. The fu
moon shone brightly overhead.

Evaluate 161

Directions

1. Decide which teammate will be the Sun, the Moon, and Earth. Pin on the name tags.
2. Read information clue #1 as a team. Do what the clue tells you to do.
3. Read information clue #2. Do what the clue tells you to do.

Moon's Path

Explain-Elaborate 135

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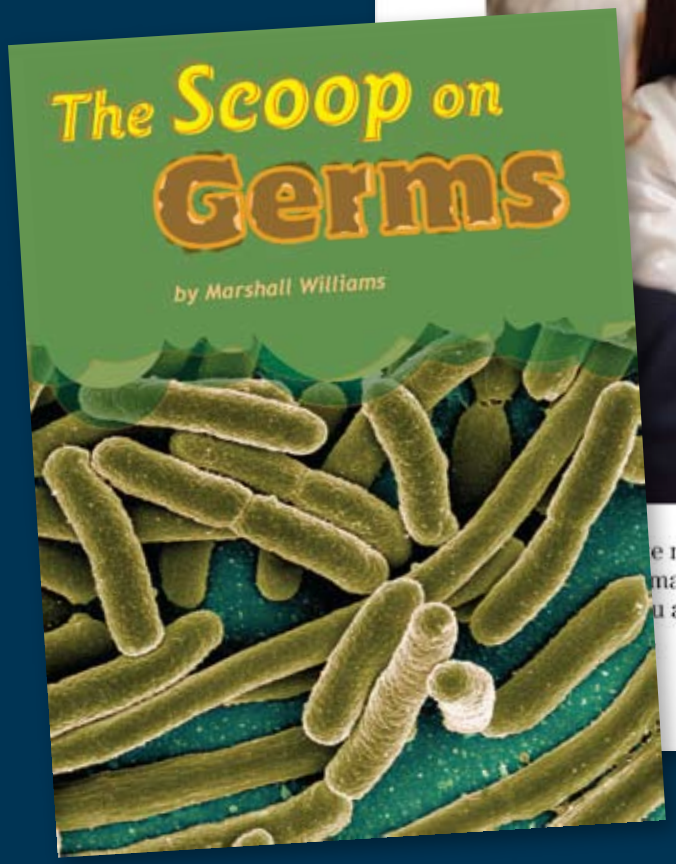
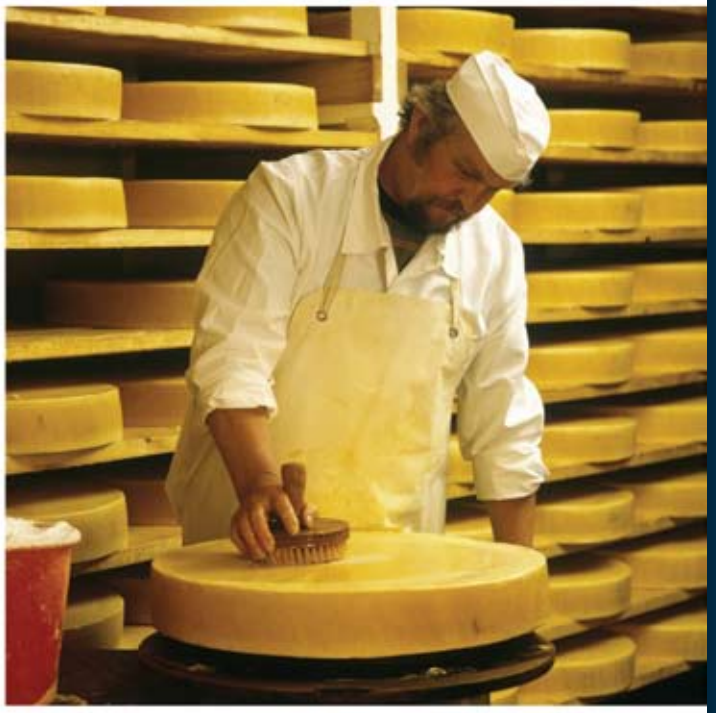
Program: Leveled Readers, Grade 4

Scope: Full-service content development including page layout, cover design, photo research, maps, art buying, and production.



e most of these germs are bad?
many more good bacteria than bad
u all the time. Doctors even use them

Some good bacteria live inside you. They help you digest your food. People also use bacteria to make foods like bread and cheese. They give the food a tangy taste.



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Program: Leveled Readers, Grade 4

Scope: Full-service content development including page layout, cover design, photo research, maps, art buying, and production.

The hypothalamus lets us know when we are hungry.

The thalamus receives and sends signals from your senses. It lets the brain know what is going on outside your body.

The hypothalamus sends signals about what is going on inside your body. It regulates your body temperature, hunger, and thirst. It also controls the flow of hormones from glands in the body.

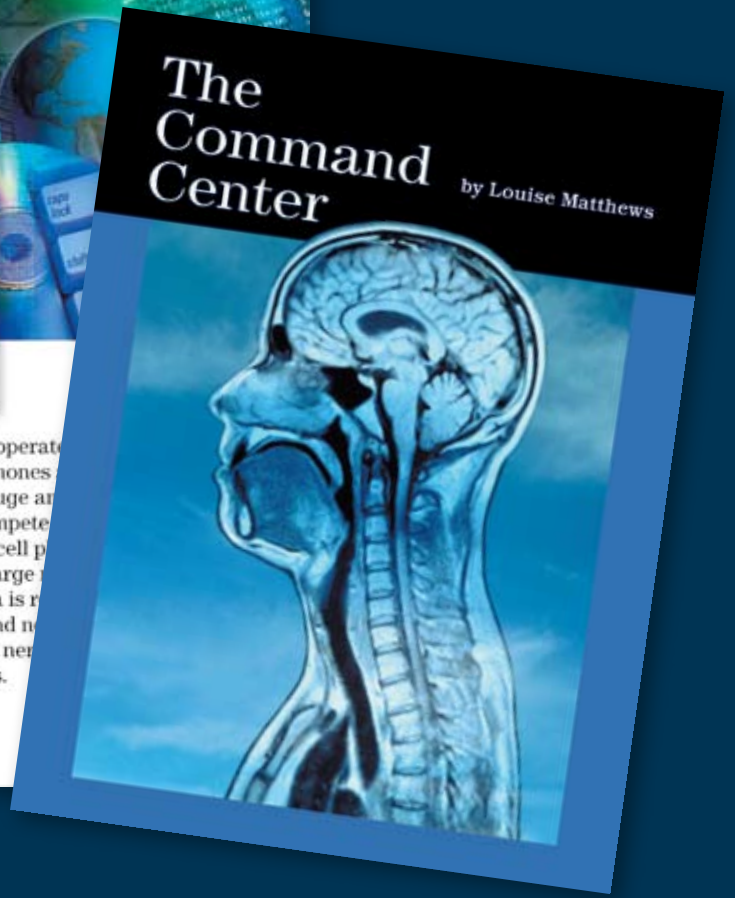
The spinal cord is a thick bundle of nerves found inside the vertebrae of your backbone. Spinal nerves connect the cord to the rest of your body. The spinal cord sends signals to and from your brain about what is happening inside and outside your body.

8

Cell phones and Internet connections operate much like neurons.

Many modern technological devices operat
the way the nervous system does. Cell phones
connections, for example, can process huge a
in just seconds. Even so, they cannot compete
or efficiency of your nervous system. A cell p
receiving signals and messages from a large

Similarly, in the nervous system, data is r
the brain through a network of nerves and n
their only function. There are millions of ner
nervous system. They are called neurons.



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Jared is about to be exposed to a cold virus. A first-period student, who uses the same desk that Jared uses, sneezed. The force of the sneeze spread tiny, invisible particles of a cold virus on the desk.

Moments later Jared arrived for second-period class. He placed his hand on the desk as he sat down. Some germs got on his hand. Then he rubbed his nose because it itched.

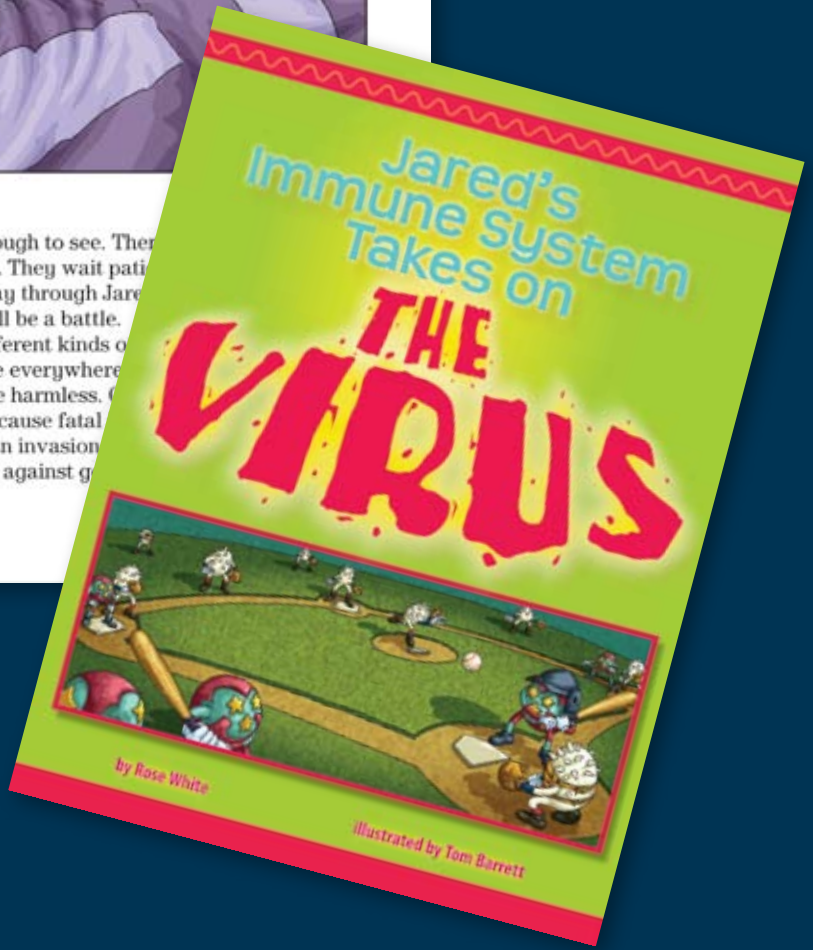
Jared transferred some of the cold germs to the mucous membrane in his nose. The germs entered cells in the lining of his nose. Then they started to reproduce—rapidly.

4

If only they were big enough to see. Ther
numbers of germs out there. They wait pati
moment. They will find a way through Jare
attack. Be assured, there will be a battle.

There are millions of different kinds o
parasites on Earth. They are everywhere
to them every day. Some are harmless.
ill. There are some that can cause fatal

How can Jared survive an invasion
system is his body's defense against g



Program: Leveled Readers, Grade 4

Scope: Full-service content development including page layout, cover design, photo research, maps, art buying, and production.

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Program: Forensic Science SE, High School

Scope: Design of interior prototype, photo research, and composition.

CASE STUDY

Case Study: Coral Eugene Watts

In 1982 Coral Watts was convicted in Texas of burglary with intent to murder; he was sentenced to a 60-year prison term. Because of mandatory release laws, an appeals court shortened his sentence to 25 years. Watts had confessed to killing 12 women, one in Michigan and 11 in Texas, and had been implicated in more than 20 more murders. He received immunity from prosecution in these cases because of his confes-

Watts, 2004

Watts, 1979

Police Sketch

CASE STUDY

Corinne

Police Sketch

24

Preparing to process a crime scene

Processing a crime scene

A short exercise on observation and sketching can prepare students for processing the more detailed crime scenes to follow in the course. Find an area of a room that will remain undisturbed for a day or so. Place a number of objects on a table or desk and maybe a few under it. These may include a pen, pencil, note pad (with a note), paper clip, matchbook, or whatever. Rope or tape the area off so nothing can be touched. Have each student investigator group make notes and a sketch of what they observe. After the students leave, change a few items such as a different brand of pencil or type of pen, or a word on the note, or a different matchbook cover, and bring the students in again to note changes.

Interviewing witnesses

38 Chapter 3

accurately, taking great care to observe and collect all evidence that will be used for scientific analysis and its legal application.

The main reason to carefully analyze the crime scene is to learn what happened and to gather evidence that can be used to identify and, ultimately, convict the people responsible.

CHAPTER 3

THE CRIME SCENE

"Oh, how simple it would all have been had I been here before they came like a herd of buffalo and wallowed all over it."

—A. Conan Doyle, *The Boscombe Valley Mystery*, 1892

OBJECTIVES

After reading this chapter, you will understand:

- The steps to take when processing a crime scene.
- That type of evidence determines what packaging should be used.
- Why the chain of custody must be preserved.

You will be able to:

- Isolate, record, and search for evidence at a mock crime scene.
- Collect and package evidence at a mock crime scene using to proper forensic procedures.

AT THE CRIME SCENE

Forensic science begins at the crime scene, which can provide useful information that must be carefully, systematically, scientifically, and legally collected. If the crime scene is not treated carefully, it can make vital information not only useless, but even deceptive, pointing an investigation in the wrong direction.

Crime scene investigators gather important information at the crime scene that must be used later in reconstructing the sequence of events, the *modus operandi*, and the motive for the crime. Investigators must treat the crime scene meticulously and

CSI officers investigate a crime scene

crime scene: any place where evidence may be located to help explain events

***modus operandi*:** the characteristic method of operation of a criminal; sometimes referred to as MO

37

LABORATORY ACTIVITY

Blood Pattern Analysis

Develop a procedure to analyze and interpret bloodstains. Be sure to make accurate observations, measurements, and sketches and to record all data. The questions you want to answer include:

- What effect does release height have on the pattern left by drops of blood?
- What effect does velocity have on impact patterns?
- How does the angle of impact affect the appearance of drops of blood?
- How can you determine the direction of travel from a blood pattern?
- How can you determine whether an assailant is right- or left-handed?
- How can you determine the origin of a blood spatter?

Remember, you may be called upon to justify your methods and interpretation in court, subject to cross examination!

Materials

wide roll of paper
simulated blood
pipets
paper
plastic knife or tongue depressor
protractor, ruler, meter stick
string and masking tape
ring stand
syringe
spray aspirator
Beral pipet or eye dropper
sine table (see Appendix A at the end of this chapter) or trig function calculator
digital camera

Procedure

1. *Height:* Work out a method to study the relationship of drop shape and size to the height of origin.
2. *Velocity:* The density of blood is 1.06 g/cc, and its viscosity is 6 times that of water. Its average drop size, because of surface tension and viscosity, is 0.05 ml for a free fall. As with all objects falling freely, a drop of blood accelerates because of gravity, 32 ft/sec^2 (9.8 m/sec^2). Any object will fall at this rate until it reaches its terminal velocity, which is a direct function of drop size. An average-sized drop reaches the terminal velocity of 25 ft/sec after a fall of 4 feet, so drop size should not change above that. The majority of high-velocity droplets, which tend to be less than 1 mm, will usually travel no more than 46 inches in a horizontal direction. Check it out.

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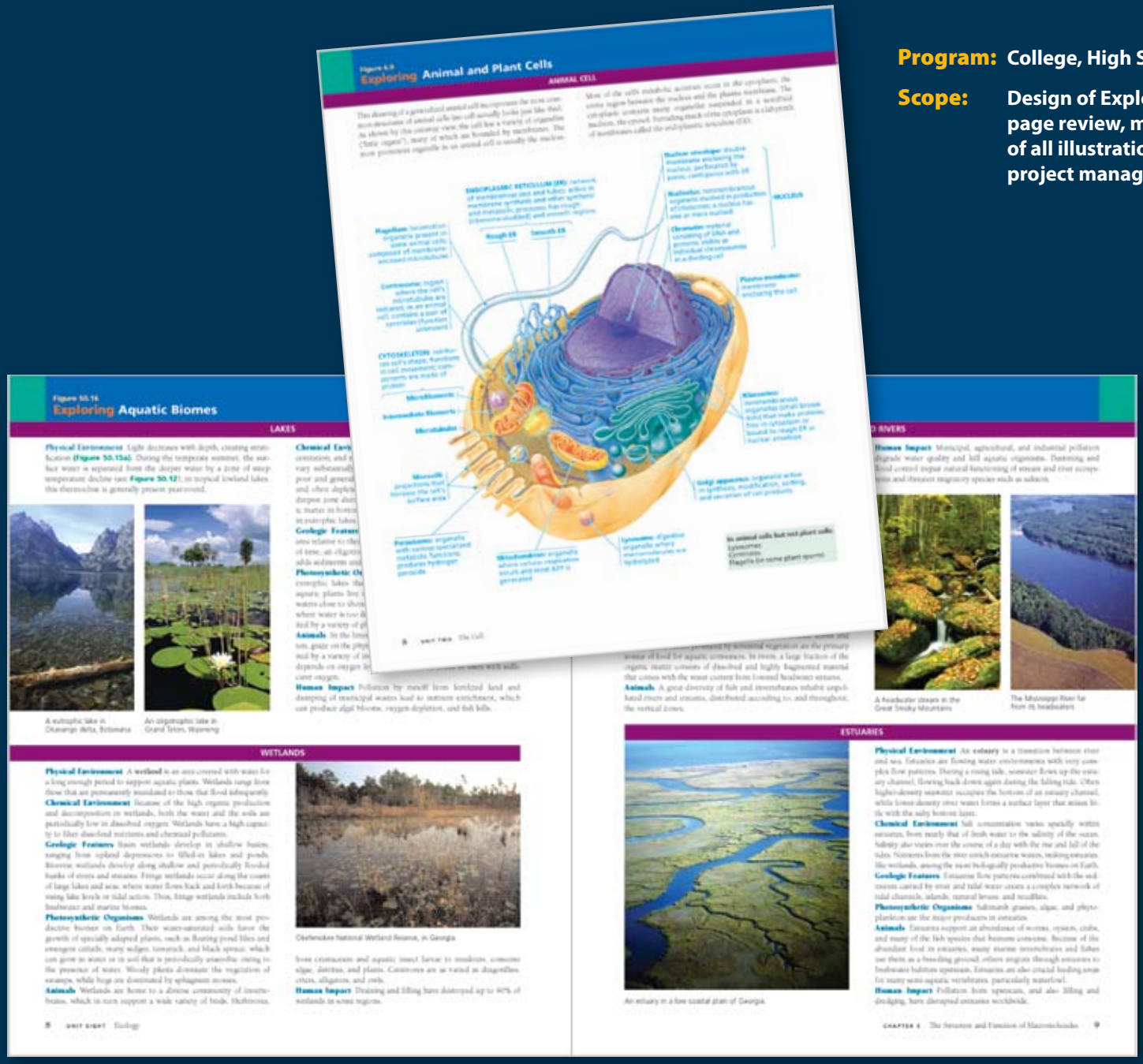

Program: College, High School AP

Scope: Design of Exploring Module spreads, page review, management and tracking of all illustration and photo, full-service project management, and composition.

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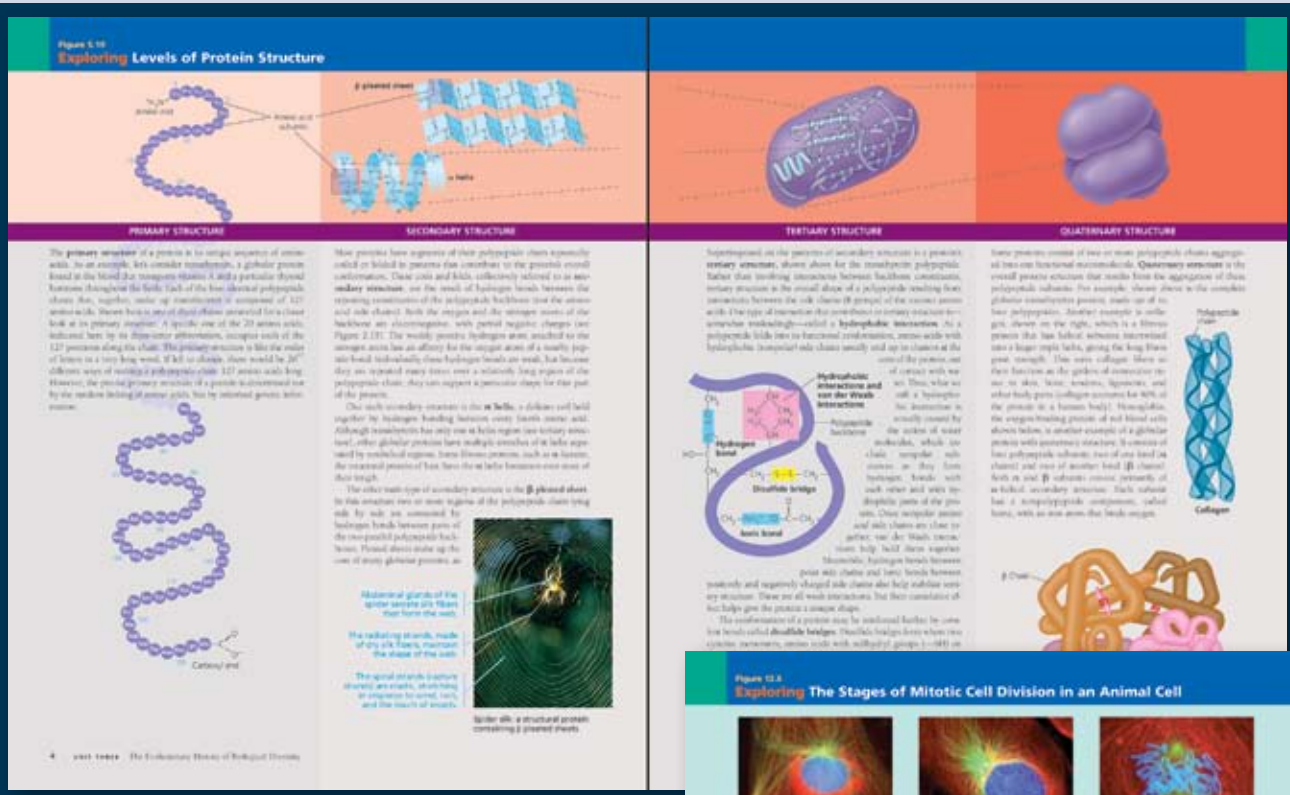

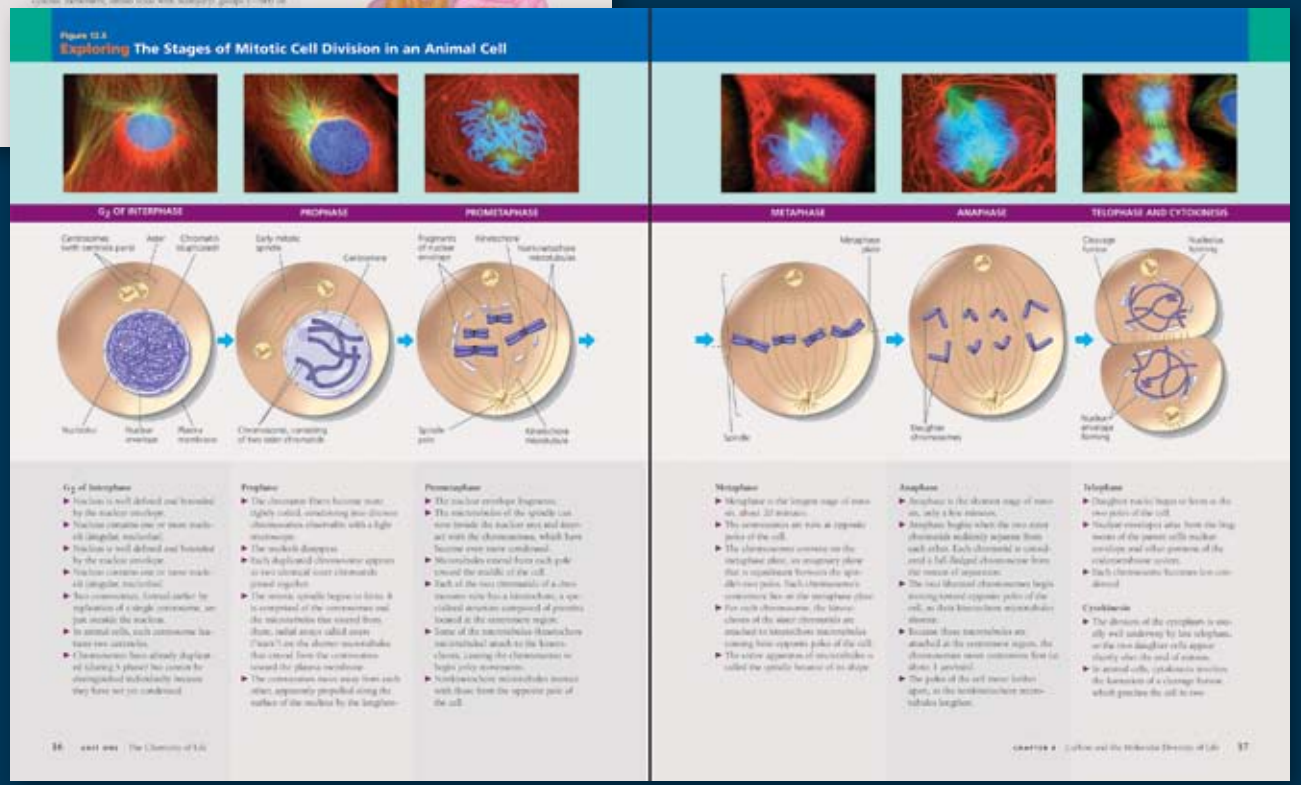

Program: College, High School AP

Scope: Design of Exploring Module spreads, page review, management and tracking of all illustration and photo, full-service project management, and composition.

aptara

Program: Microsoft Office SE, High School

Scope: Content development, creation of prototype, templates, and composition.