

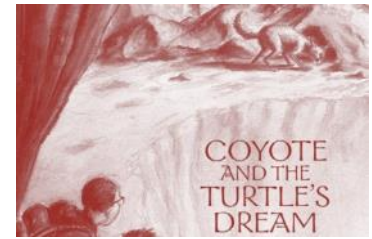


Eagle Books

## Youth Novels: Educators and Community Guide

Cross-Curricular Connections





# COYOTE AND THE TURTLE'S DREAM

## Science, English/ Language Arts, and Social Studies

### Disease Detectives

*A cross-curricular activity for Write Newspaper Articles, Activity 2 (English/Language Arts) and Family Detectives, Activity 2, Gathering Evidence (Social Studies).*

### Objectives

- Find out what epidemiologists do.
- Solve disease mysteries online by investigating infectious disease outbreaks.

In the English/Language Arts section we interviewed characters in *Coyote and the Turtle's Dream* for articles that would be printed in the Thunder Rock newspaper. We also collected stories from family members. The interviewing techniques we used were based on Mrs. Corn's "who, what, where, when, and how" questions. These questions were very similar to the ones that Rain and his friends asked when they were organizing the similarities and differences between Rain's dream and Granma Hettie's story about the cave. They were being good detectives. Indeed, they came up with some hypotheses about how the coyote was involved in the mystery and why Jimmy ran away. In the Family Detectives activities in the Social Studies section, students further utilized these same interviewing questions to find out clues about their family trees.

Disease detectives or epidemiologists ask comparable questions when they try to solve mysteries

about diseases. They study many kinds of diseases, including infectious diseases and lifestyle/ environmental diseases. Infectious diseases are those that spread parasites, bacteria, and viruses from person to person through exposure to other people, animals, and insects, and by ingesting contaminated water or food. Lifestyle diseases (like heart disease, stroke, many cancers, respiratory diseases such as emphysema, and type 2 diabetes) are related to peoples' behaviors, such as what and how much they eat and drink, their level of physical activity, and whether they smoke. Environmental diseases are those related to peoples' exposures to harmful substances where they live or work. Epidemiologists want to know what causes a disease so they can stop it from making people sick. They find clues about the causes of a disease by gathering information about where and when it occurs, and who gets the disease. Below are some games and Web sites that describe what disease detectives do.

### Online Resources

Outbreak at Waters Edge: a Public Health Discovery Game.  
<http://www.mclph.umn.edu/watersedge/>

Welcome to the Headquarters of the Disease Detectives. Includes a Disease Detectives board game.  
<http://www.disease-detectives.org/Welcome.html>

Disease Detective. Includes an interactive Disease Detective game.  
<http://www.pbs.org/wgbh/nova/body/disease-detective.html>

Bam! Body and Mind: Disease Detectives. Meet Dr. Asthma.  
[http://www.bam.gov/sub\\_diseases/diseases\\_detectives.html](http://www.bam.gov/sub_diseases/diseases_detectives.html)

## Science and English/ Language Arts

### A Day in the Life of the Archelon

*A cross-curricular activity for Part 1 Investigating Earth's History—Learning From the Past.*

*Investigation 4: Uncovering the Past—Erosion and Weathering*

In *Coyote and the Turtle's Dream*, a fossil poacher tries to get Grandma Hettie and Jimmy to take him to a cave that hides the fossilized remains of the biggest turtle that ever lived. The fossil poacher wants to steal the fossil and sell it on the black market for a lot of money. The turtle's scientific name is Archelon ischyros (translated from Greek as the Ruler Turtle, Strong Turtle, or Chief Turtle). In the story, Rain and his friends call her the Great Turtle.

Although she was not a dinosaur, the Great Turtle became extinct along with the dinosaurs at the end of the Cretaceous period. This time period is called the K-T extinction event or the Cretaceous-Tertiary event. However, although Archelon ischyros died out, she has relatives that still swim the oceans of the world today. Some of them probably experience life much as she did, but there are differences. Sea turtles alive today, unlike the Archelon, don't have to flee from monster reptiles like the mosasaurs! (The mosasaurs became extinct, too.)

### Online Resources

The Archelon. Photos of how she looked in life.  
<http://www.bbc.co.uk/science/seamonsters/factfiles/archelon.shtml>

What Is a Giant Sea Turtle Doing in South Dakota?  
The giant Archelon ischyros.  
[http://www.uhaul.com/supergraphics/states/south\\_dakota/turtle/index.html](http://www.uhaul.com/supergraphics/states/south_dakota/turtle/index.html)

(Click on the turtle in the photo to enter the site.)

Archelon ischyros. My Barbaric Yawp. Great photos. <http://www.mcorriss.com/DA2.html>

There are many Web sites on the Internet about Archelon ischyros and sea turtles. Have students research the Archelon on the Web sites provided, and do the following activities:

- Make up a story about a day in the life of the Great Turtle.
  - Describe when the ancient turtle lived and what she looked like.
  - What did these turtles eat?
  - How were their babies born?
  - Who were their enemies?
  - Did they like deep water or shallow water? Warm or cold water?
  - Did they swim long distances?
  - How did they sleep?
  - Imagine what would it be like to swim with the Great Turtle? What would it be like to *be* the Great Turtle?
- Illustrate the story with a picture of the Archelon and other creatures and plants that lived in the sea during the Cretaceous period.
- Many Archelon fossils showed that they were often in the state of hibernation on the bottom of the sea when they died. This state of hibernation is called brumation. Ask students to look for information about brumation or brumating.

About.com Dinosaurs. Enter Archelon in "search" and learn more about the giant turtles.  
<http://dinosaurs.about.com/od/aquaticdinosaurs/p/archelon.htm>

Fossil Sea Turtles.  
<http://www.euroturtle.org/fossil.htm>

The End-Cretaceous (K-T) Extinction. Learn about the theories that explain the end of the dinosaurs.  
<http://park.org/Canada/Museum/extinction/cretmass.html>

## Science and Social Studies

### Protecting the Fossil Record

*A cross-curricular activity for Part 1 Investigating Earth's History—Learning From the Past. Investigation 4: Uncovering the Past—Erosion and Weathering*

- Have students research fossil poaching online. Find out who the poachers are, who buys the fossils, and where fossil poaching often occurs.
- Find out more about laws that protect fossils in their state. Which government agency holds responsibility for protecting the fossil record? How are the laws enforced? What are the penalties for fossil-poaching?
- Write to a local college, county extension service, or state park service and invite a speaker to talk to the class about fossil protection and fossil poaching.
- Read articles about the controversies surrounding who owns the fossils, especially the story about The Curse of the T. Rex. Hold a class discussion about the roles that tribes play in protecting the fossil record.
- Have a class debate about the pros and cons of preserving fossils in their natural environment verses removing them for study and display. Also discuss whether individuals should be allowed to own fossils. What kinds of fossils should individuals be allowed to own?

### Online Resources

Fossils in Native American Lands. Whose bones, whose story?  
<http://www.stanford.edu/dept/HPS/Mayorwhosebones.pdf>

NOVA: The Curse of the T. Rex (1997) Describes the controversy that surrounded the discovery of "Sue," the biggest and most complete fossil of T. Rex ever found.  
<http://www.pbs.org/wgbh/nova/transcripts/2408trex.html>

## Science and Math

### Dating Fossils: Determining Half-life

*A cross-curricular activity for Part 1 Investigating Earth's History—Learning From the Past. Investigation 4: Uncovering the Past—Erosion and Weathering*

### Background for Teachers

All living materials contain carbon. Not all atoms of carbon are exactly the same. While all carbon atoms must have the same number of protons (6) to be carbon, they might have different numbers of neutrons. Atoms of the same element with different numbers of neutrons have different masses. These atoms are called isotopes.

Radio carbon dating is one method used to date fossils. C-14, an isotope of carbon with eight neutrons, is radioactive. That means that it will break down and lose some of the particles in its atoms. Radioactive isotopes spontaneously decay until they become stable or non-radioactive like C-12. While an organism is alive, the level of C-14 remains relatively constant as the organism interacts with its environment (eats food, for instance). When the organism dies, it no longer takes in carbon from the environment and the C-14 begins to decay. Radioactive isotopes decay at a constant rate. The amount of time it takes for half of the C-14 isotopes to decay is called the half-life period. The amount of time it takes for half of the remaining sample to decay is always the same.

If scientists measure the ratio of C-14 to C-12 in a fossil, they can calculate the age of the sample by using the half-life for the decay of C-14.

In this group activity, students can simulate radioactive decay using pennies. Using simulation data they can determine how many years it will take for a “fossil,” containing 100 pennies when it was alive, to decay and finally lose all of its pennies. Students will be able to see that the age of the “fossil” can be estimated as the percent of pennies decrease at a steady rate. In our activity, pennies have a half-life of 100 years.

### Materials

For each group:

- 100 pennies
- Graph paper
- A container to shake the pennies (a can or plastic container).

### Online Resources

Physics 2000: Isotopes and Radioactivity.  
[http://www.colorado.edu/physics/2000/isotopes/radioactive\\_decay3.html](http://www.colorado.edu/physics/2000/isotopes/radioactive_decay3.html)

## Procedure

- 1 Place all 100 pennies into the container and shake well.
- 2 Pour the pennies onto a flat surface. Remove all pennies that are tails up. Record the number remaining (heads up) in the data table provided under half-life #1. (See the sample data table below.)
- 3 Place the remaining heads up pennies back into the container and shake again.
- 4 Pour the pennies onto a flat surface. Remove all pennies that are tails up. Record the number remaining (heads up) in the data table under half-life #2.
- 5 Repeat steps 3 and 4 until all pennies are removed or only one remains. (Students should note that with each throw the half-life in years increases as shown in the table.)
- 6 Calculate the percent of pennies left based on the original 100 pennies. How many years have passed when the percent of pennies left is almost zero?
- 7 Using the data table, make a graph (see the sample graph below) with the percent of pennies remaining that are heads up (Y-axis) vs. Time in Years (X-axis). Place the first point where the 100% line starts on the 0 year line; place the second point (half-life #1) at the appropriate percent on the 100 year line. Continue until the data are exhausted. Draw a line connecting the points. The pennies will probably be exhausted before the data table is completed.

## Follow-Up Activity

- Graphs enable students to make estimates. Use the graph to determine the age of a penny sample in years that is found to contain 80% heads-up pennies. Mark and label this point on the graph. Estimate the number of years that have passed when 80% of the sample is left. What percent of the sample has decayed?
- Use the graph to determine the age of the penny sample in years that are found to contain 30% heads-up pennies? Mark and label this point on the graph. How old is the penny sample now?

## Sample Penny Data Table

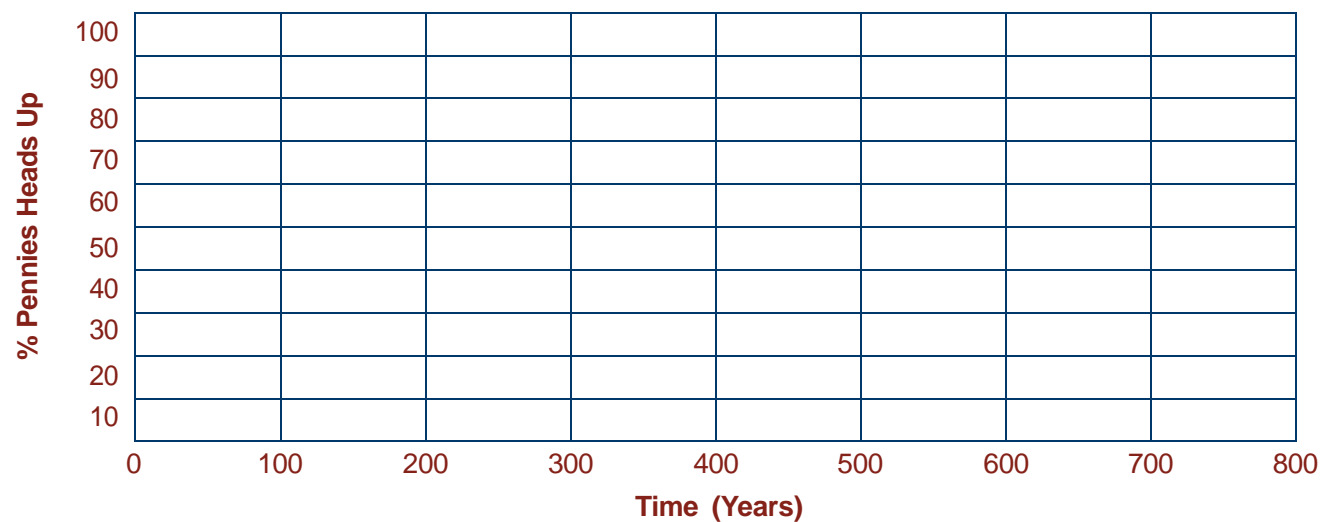
Half-Life of Pennies

Half-life Period	Time (years)	Number of Pennies Remaining (heads-up)	Percent of Pennies (heads up)
0	0	100 pennies	100
1	100	42	42%
2	200	22	22%
3	300	12	12%
4	400	6	6%
5	500	3	3%
6	600	1	1%
7	700		
8	800		



## Sample Graph

Half-Life of Pennies





Eagle Books

## Youth Novels: Educators and Community Guide

Career Connections





## Career Connections

One of the objectives of the Youth Novels is the promotion of interest in careers that advance the health and well-being of Native communities. There are many careers that relate to the major themes in the Youth Novels. These themes are:

- The prevention and control of type 2 diabetes through physical activity, healthy diet, the support of family and friends, and respect for Native traditions.
- The control of type 1 diabetes through physical activity, healthy diet, the support of family and friends, and continuous commitment to the maintenance of good health.
- The building of healthy families, schools, and communities through promotion of positive lifestyles and respectful relationships.
- The protecting of the earth's past and assuring its healthy future via deep understanding of its relational dynamics.
- The contributions of Native Science to our modern world and the continuation of that great tradition. and
- The power of young people to make a positive difference in the health of their communities.

The Web sites provided in this section offer a wealth of ideas that teachers and communities can use to stimulate students' thinking about what they want to be when they grow up. These sites offer not only practical information but fun activities as well.



### Career Zone Pennsylvania: Job Families

<http://www.pacareerzone.org/clusters>.

This wonderful site is well suited to the needs of middle schoolers. It offers information, slide shows, and videos on career clusters that include medicine, science, community and social services, education, architecture and engineering, and many other job families.

### Eek! Get a Job

<http://dnr.wi.gov/org/caer/ce/eek/job/index.htm>

EEK means Environmental Education for Kids at this career Web site. Find out what park naturalists, fish biologists, and hydrogeologists do!

### U. S. Bureau of the Interior

[http://www.blm.gov/wo/st/en/res/blm\\_jobs/our\\_careers/career\\_cards/career\\_cards\\_\\_natural.html](http://www.blm.gov/wo/st/en/res/blm_jobs/our_careers/career_cards/career_cards__natural.html)

Provides a "career cards" Web site that describes 20 different careers that are necessary to management of lands and natural resources.

### Careers in Soil Science

<http://soils.usda.gov/education/facts/careers.html>

Soil careers at the U. S. Department of Agriculture

### Discover Science Careers

<http://library.thinkquest.org/11465/careersinfo.html>

Explore science careers and scientific interests.

### **The Science Spot**

<http://sciencespot.net/Pages/career.html>

A great Web site for fun activities that introduce middle schoolers to various career choices. The activities include *Name that Career* and *Career Clusters*.

### **Ask a Scientist**

<http://www.askascientist.org/>

This Web site has many science activities for kids, including exploring science careers.

### **Web Adventures**

<http://webadventures.rice.edu/>

Students enthusiastic about science may want to check out the “Cool Science Career” games on this site.

### **Native Access to Engineering**

<http://www.nativeaccess.com/>

This Web site, developed by Queens University in Canada, offers an interactive educational activity called Bear Paw Trail. Visitors can walk down several trails learning about science and engineering. There are also features called “A Day in the Life of an Engineer” and “Ancestral Engineering.” Educational requirements for engineers are clearly defined.

### **American Indian Science and Engineering Society: A Universe of Opportunities**

<http://www.aises.org/who/board#bod>

Students can go online to meet the Board of Directors, Native scientists and engineers from many tribes, and the Council of Elders that advises the society. The site features the Department of Energy’s Intertribal Middle School Science Bowl, hosted by the society. Each year, ten teams from tribes across the country take part in this science and engineering tournament. The Web site also features the biggest science fair for American Indian/Alaska Native students in the country: the National American Indian Science & Engineering Fair and EXPO.

### **Association of American Indian Physicians**

<http://www.aaip.org/?page=NNAYISTUDENT>

The site provides information about the Patty Iron Cloud National Native American Youth Initiative which brings youth together to promote interest in health careers.

## Learning about Careers

The careers below are organized by the job families on the Career Zone Pennsylvania Web site. Some of these careers are specifically mentioned in the Youth Novels; others are related to the themes in the novels or to the activities in the *Youth Novels: Educators and Community Guide*.

Students can go to Career Zone Pennsylvania to find careers that may interest them. Of course, not every career is represented on the Web site. If there is a career that students can't find on Career Zone Pennsylvania, have them look up the career online. Once students have settled on some careers of interest, have them make "career cards" that summarize key information about the careers. These cards should include the type of work done, the education required, the most interesting aspects of the work, and how the careers contribute to society.

### Health Care Practitioner and Technical Occupations

There are many health care professions. Some specifically address the control of type 1 diabetes and prevention and control of type 2 diabetes. Not all of these, however, are listed on the Career Zone Pennsylvania site. Some of the health professions listed below include Web sites that provide more information about these very important health care providers:

- **Physician (Endocrinologist)** A specialist in the management of type 1 and type 2 diabetes. Diabetes and Endocrinologists.  
<http://diabetes.about.com/b/2007/03/07/diabetes-and-endocrinologists.htm>
- **Certified Diabetes Educator (CDE)** A CDE may be a nurse, dietitian, exercise physiologist, pharmacist, or social worker who has specialized in diabetes education and care management. American Association of Diabetes Educators.  
<http://www.diabeteseducator.org/ProfessionalResources/Certification/>
- **Registered Nurse and Diabetes Specialist Nurse.**  
The Role of a Specialist Diabetes Nurse.  
[http://www.ehow.com/about\\_5201899\\_role-diabetes-specialist-nurse.html](http://www.ehow.com/about_5201899_role-diabetes-specialist-nurse.html)
- **Medical Nutritionist.**  
[http://www.ehow.com/facts\\_5579755\\_medical-nutritionist\\_.html](http://www.ehow.com/facts_5579755_medical-nutritionist_.html)
- **Community Health Worker (Indian Health Service Community Health Representative)**  
<http://www.ihs.gov/nonmedicalprograms/chr/>
- Dietician
- Physical Therapist
- Emergency Medical Technician
- Fitness Trainer
- Exercise Physiologist

### Community and Social Services Occupations

- Community Organizer
- County Extension Service Manager
- Economic Developer
- Neighborhood Watch Officer
- School or Clinical Counselor
- Social Worker

### Life, Physical, and Social Science Occupations

- Archeologist
- Paleontologist
- Botanist
- Biochemist
- Geologist
- Oceanographer
- Hydrologist
- Meteorologist
- Ecologist
- Environmental Scientist
- Laboratory Scientist
- Zoologists and Wild Life Managers
- Soil Scientist

- Horticulturalist
- Psychologist
- Urban and Regional Planners
- Geographer

### Education, Training, and Library Occupations

- Elementary, Middle School, and High School Teachers
- English/Language Arts
- Health
- Math
- Science
- Art and Music
- Librarian
- Physical Education (Coaches)
- Ethnic and Cultural Studies
- School Administration

### Architecture and Engineering

- Architect
- Landscape Architect
- Environmental Engineer
- Biochemical Engineer

### Protective Service Occupations

- Police Chief
- Tribal Law Enforcement Officers

### Transportation and Materials Moving

- Light Truck and Heavy Tractor Trailer Drivers

### Public Health

This career category is not listed on the Career Zone Pennsylvania Web site. Public health brings people together from all kinds of job families. Public health addresses the health of the whole community, not just the health of individuals. Some public health careers are listed above. Find out more about public health careers at Excite! Careers in Public Health. <http://www.cdc.gov/excite/careers/index.htm>

- Public Health Physicians and Nurses
- Epidemiologist (A Disease Detective)
- Health Educators
- Environmentalists

### Public Health and Health Communication

Creative people like writers, graphic artists, photographers, and videographers are essential to public health campaigns. They make videos, design brochures, create characters, and generally provide the imaginative concepts and imagery that makes health messages come alive.

Find out more about health communication at <http://www.cdc.gov/healthcommunication/>

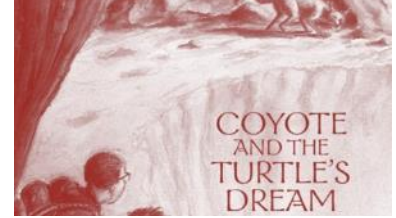


Eagle Books

## Youth Novels: Educators and Community Guide

Appendices





## COYOTE AND THE TURTLE'S DREAM SCIENCE PART 2: INVESTIGATION 1

### Appendix 1

### ARE ALL CARBOHYDRATES EQUAL?

#### ACTIVITY 1

#### Making Sugar

Follow the directions below to build models of glucose, maltose, and starch. The pipe cleaners (fuzzy sticks) are usually sold in 12-inch lengths. You will need the following to build each glucose molecule:

#### Materials

Three 12-inch sticks per molecule cut into the following lengths

- One 12-inch stick
- One 4-inch stick
- Four 3-inch sticks
- One 2-inch stick



## Procedure

### Assembly of Glucose

**1** Take the 12-inch stick and twist the ends together to make a circle to represent the carbon ring in glucose. Where the two ends are joined together is indicated by the arrow in the model to the right.

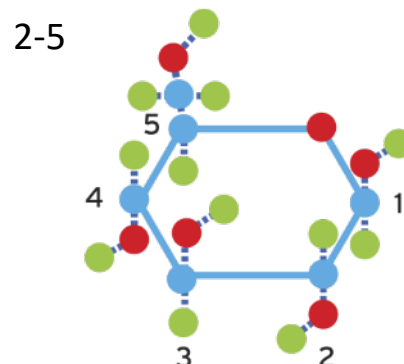
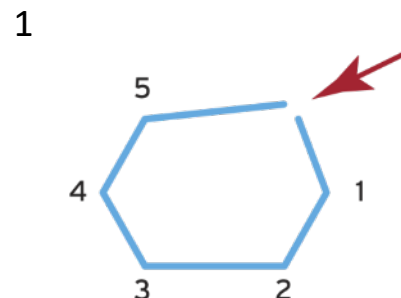
**2** Starting at the join, measure every 2 inches around the ring and make five marks on the carbon ring. Bend the pipe cleaner into the hexagonal shape shown. Except for the join, a carbon atom is found at every hexagonal bend on the ring.

**3** Attach the 3-inch pipe cleaners at positions 1 - 4 by twisting them on the carbon ring. One inch of the 3-inch pipe cleaner should be below the carbon ring at positions 1 and 3, and 2 inches should be below the ring at positions 2 and 4.

**4** Bend the 2-inch portions above and below the ring at a 90° angle (as shown in the models).

**5** Attach the 4-inch pipe cleaner at position 5 so that 1 inch is below and 3 inches are above the ring.

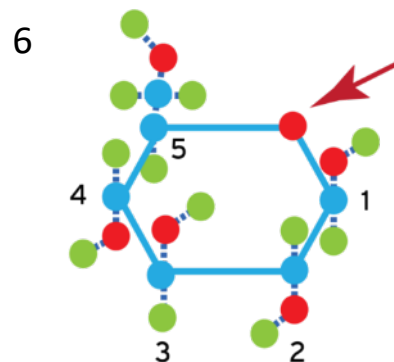
Attach the 2-inch pipe cleaner to the position 5 pipe cleaner about 1 inch above the carbon ring. It should form a t-shape as shown.



## 6 Painting color key:

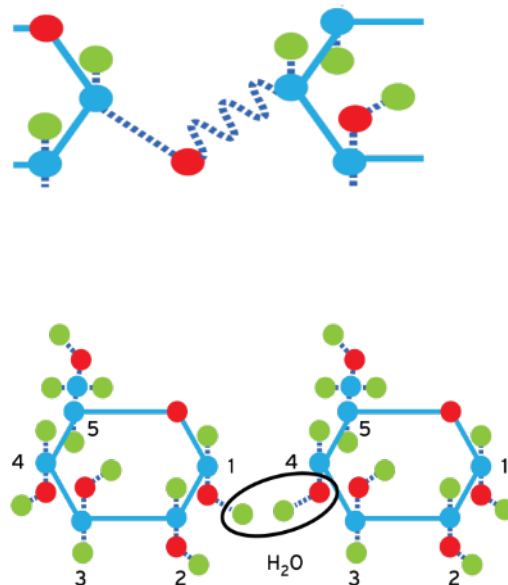
- a** Color #1 (red) should be painted where the ring is joined (shown by the arrow) and on each attached pipe cleaner at the 90° bend. *These are the positions of the six oxygen atoms.*
- b** Color #2 (blue) should be painted where each pipe cleaner attaches to the ring, including where the 2-inch stick crosses the 4-inch stick at position 5. *These are the positions of the six carbon atoms.*
- c** Color #3 (green) should be painted at the each end of every pipe cleaner. *These are the positions of the 12 hydrogen atoms.*

- 7** The completed molecule is glucose! It has 6 carbons, 12 hydrogens, and 6 oxygens. It should look similar to the model shown. Glucose is a mono-saccharide. “Mono” means one and “saccharide” means sugar. Glucose is a one sugar molecule.



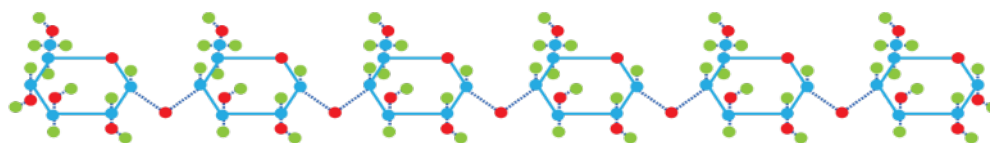
### Assembly of a Disaccharide

To simulate a disaccharide (a two-sugar molecule), attach two molecules together by twisting a hydrogen atom attached to the carbon at position 1 in the first glucose molecule to the hydrogen and oxygen atom at position 4 in the second glucose molecule. This will result in a loss of hydrogen atom from a carbon in the first molecule and the loss of a hydrogen and oxygen from in the second molecule. The remaining oxygen joins the two molecules. (When the two glucose molecules bond together, water is produced.) This disaccharide is a molecule of maltose.



### Assembly of a Starch

To simulate starch connect glucose molecules together in the same manner as above to create a chain of six molecules.



## HUMMINGBIRD'S SQUASH ENGLISH/LANGUAGE ARTS

### Appendix 2

### STORYTELLING

#### ACTIVITY 1

#### Finding the Theme in a Fable

### Why the Possum Lost the Hair On His Tail

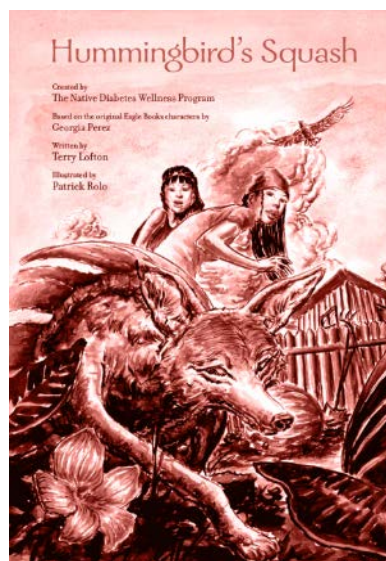
The Possum used to have a long, bushy tail and was so proud of it that he combed it out every morning and sang about it at every dance. Finally, the Rabbit, who had had no tail since the Bear pulled it out, became very jealous and made up his mind to play a trick on the Possum.

There was to be a great council and a dance at which all the animals were to be present. It was the Rabbit's business to send out the news so, as he was passing the Possum's place, he stopped to ask him if he intended to be there. The Possum said he would come if he could have a special seat, "Because I have such a handsome tail, I ought to sit where everybody can see me." The Rabbit promised to attend to it and to send someone to comb and dress the Possum's tail for the dance. So the Possum was very much pleased and agreed to come.

Then the Rabbit went over to the Cricket (who is such an expert hair-cutter that the people call him "the barber") and told him to go the next morning and dress the Possum's tail for the dance that night. He told the Cricket just what to do and then went on about some other mischief.

In the morning, the Cricket went to the Possum's house and said he had come to get him ready for the dance. So the Possum stretched himself out and shut his eyes while the Cricket combed out his tail and wrapped a red string around it to keep it smooth until that night. But all this time, as he wound the string around, he was clipping off the hair close to the roots, and the Possum never knew it.

When it was night the Possum went to the townhouse where the dance was to be. He found the best seat all ready for him, just as the Rabbit had promised. When his turn came in the dance, he loosened the string from his tail and stepped into the middle of the floor. The drummers began to drum and the Possum began to sing, "See my beautiful tail." Everybody shouted and he danced around the circle and sang again, "See what a fine color it has." They shouted again and he danced around another time, singing, "See how it sweeps the ground." The animals shouted more loudly than ever, and the Possum was delighted. He danced around again and sang, "See how fine the fur is."



Then everybody laughed so long that the Possum wondered why they were laughing so much. He looked around the circle of animals. Then he looked down at his beautiful tail and saw that there was not a hair left on it. It was as bare as the tail of a lizard! He was so astonished and ashamed that he could not say a word. He grinned and rolled over on the ground like he was dead—just as the Possum does to this day when taken by surprise.

*-Old Cherokee Story*





## HUMMINGBIRD'S SQUASH ENGLISH/LANGUAGE ARTS

### Appendix 3

### STORYTELLING

#### ACTIVITY 2

#### Character Development, Writing a Back Story

#### Walter's Back Story

Walter (also known as Dumptruck) is big for his age—almost too big. At 13 he is a classic example of the boy who falls over his own feet. This could be because he never ties his shoe laces. Although tall, he is soft around the middle and slumps when he walks.

He spends a lot of time snacking and watching TV by himself. Sometimes he plays video games with his cousins. His grades at school are poor and he always sits at the back of the class. Walter once surprised his science teacher, however, when he correctly answered questions about the forces that keep a plane in the air. Walter's secret wish is to be a pilot. He reads everything he can about planes.

Walter's parents are divorced. He hasn't seen his father in 3 years. He lives with his mother, Suzanne, in a small apartment that is subsidized by the Tribe. He has two younger sisters that live with his Aunt Marcie and Uncle John. Walter's uncle tries his best to fill in for dad, but he knows that Walter needs more. He is genuinely fond of the boy and has offered to take him into his household, too. But Walter's mother says she would miss him if she couldn't see him every day. She loves him too much.

Suzanne works in housekeeping at a motel owned by the Tribe. Walter wants nice clothes and a cell phone like some other kids, but his mother can't afford it. She tells him that it will be different one day. Walter understands. He tells his mom that his favorite thing is renting a movie and making popcorn for her on Saturday nights. One night his mother rented an old Disney movie about a dog called "Old Yeller." When the dog died in the movie, Walter cried but wiped away his tears before his mom could see them. Walter is very soft-hearted, but he wants people to think he is tough.

In the seventh grade, Walter, who had always been quiet and withdrawn at school, found a "friend" when Chris Sorrel started giving him money to buy ice cream at lunch. Walter felt guilty when he found out that Chris was taking it from other kids, but he wanted to belong to Chris's crowd, especially when Chris became one of the most popular kids at school.

Walter often will bully other students for Chris because he wants to be accepted by Chris and his friends. He has gotten into trouble for bullying on the school bus several times. He has promised his mother that he will be "good," but he doesn't keep



the promise. Walter is very conflicted about this. He cares about his mother and does not want to disappoint her.

### **Many decades in the future**

Just like we can write a back story for Walter, we can imagine his future, too. Walter's wish as a boy was to be a pilot. True to his ambition, with a lot of study and determination, and not to mention excellent eyesight, he becomes a naval aviator. Walter joins NASA when the agency begins a new era of exploration into deep space. Eager to walk on new worlds, Walter becomes one of eight members of the first manned expedition to Mars in the year 2041.



## HUMMINGBIRD'S SQUASH SOCIAL STUDIES

### Appendix 4

#### BEING A GOOD RELATIVE

##### ACTIVITY 3

##### Steps to Stop Bullying

### Myths About Bullying

#### Bullying is just harmless teasing

**Answer: False.** While many bullies tease, others use violence, intimidation, and other hostile tactics. Sometimes teasing can be funny and the person being teased is in on the joke. But bullying always hurts.

**Discussion:** There are many forms of bullying. Let's see if you can identify them and the impact bullying had. Was Chris bullying Hummingbird when he was teasing her? How did Hummingbird feel? Were Melvin and Jesse teasing when they bullied Simon at the recreation center? How did Simon feel?

#### Some people deserve to be bullied—they bring it on themselves.

**Answer: False.** No one ever deserves to be bullied. No one “asks for it.” Bullies will often harass people who are different in some way. Being different is never a reason to be bullied.

**Discussion:** Why was Arianna bullied? Did she “deserve” to be bullied because she has type 1 diabetes? Was the sound of her insulin pump's alarm a reason to embarrass her? Did Simon

“deserve” to be bullied by his cousins because he was awkward when he tried to sing and dance? Discuss with children why it is never justifiable to pick on someone who looks different, acts or speaks differently, has an illness or disability, or just doesn't know the things that “everyone knows.”

#### Only boys are bullies

**Answer: False.** Both boys and girls can be bullies. Sometimes the type of bullying done by boys and girls may be different, but all forms of bullying can be harmful. Boys are more likely than girls to physically bully others. Physical bullying can be very noticeable, which is why there is a myth that only boys, not girls, are bullies. Girls tend to use less obvious forms of bullying, such as spreading rumors and embarrassing or excluding others. While this type of bullying is less direct or obvious, it is just as harmful.

**Discussion:** There were not many girl characters in the book who were bullies. But Chris's “groupies” supported him, especially Mindy. Why did Mindy take the science test to Mr. Pence? Why did she lie about finding it? Was she bullying Hummingbird, too? Girls often bully just as much as boys, but in different ways.

Even though they may not do it intentionally, students may encourage bullies by gossiping and spreading rumors. How did Sammie, Little Deb, and Star help to make Chris's cyber attack on Rain more successful?

### People who complain about bullies are babies

**Answer: False.** People who complain about bullies are standing up for their right not to be bullied. They are also letting others know that bullying is hurting them or someone else and that hurting others is not acceptable in their school or community.

**Discussion:** To whom did Rain, Simon, and Boomer complain about Chris's bullying? Whom did Hummingbird and Arianna talk to? Whom did Walter and Larry confide in? What did they say? Did they sound like babies?

### Bullying is a normal part of growing up

**Answer: False.** Getting teased, picked on, pushed around, threatened, harassed, insulted, hurt, or abused is never normal or acceptable behavior. Bullying can result in physical injury, social and emotional distress, and even death. Believing that bullying is normal and acceptable lessens the likelihood that someone will say or do anything to stop it.

**Discussion:** Were there people in Thunder Rock that thought it was normal to be bullied? What did Simon's cousin say to him when he complained about Melvin and Jesse running him out of the recreation center? Was this good advice? Did he seem to accept the situation? Do you think he said anything about Simon's complaint to an adult in the family? Did Hoke, Chris's stepfather, think bullying was normal? Did his acceptance create a "normal" family environment for Chris?

### Bullies will go away if you ignore them

**Answer: True and False.** Ignoring a bully is a good nonviolent way to try to stop the bullying, and sometimes this strategy makes bullies go away. Unfortunately, ignoring does not always work, and some bullies may keep bullying

others until they get a reaction. Other strategies include children talking to a trusted adult if they are bullied or see others being bullied. The adult can potentially help find a nonviolent solution and can give comfort, support, and advice if they can't solve the problem directly.

**Discussion:** Can you think of a scene in *Hummingbird's Squash* where Rain and the boys made jokes and were trying to ignore Chris? What happened in this scene when Chris got frustrated because Rain, Boomer, and Simon did not seem to be taking him seriously? Did he stop bullying or bully more? Who realized that Chris's bullying was becoming more threatening and harmful? What did Walter and Larry do? Even though they later made half-hearted attempts at bullying Simon (on Chris's orders), did they want to continue bullying Simon? Why not?

### All bullies have low self-esteem. That's why they pick on other people

**Answer: False.** Some bullies have high self-esteem and some have low self-esteem. Most of the time, bullying isn't about high or low self-esteem. It's about having power, especially power over other people.

**Discussion:** Did Chris have high or low self-esteem? What evidence do you have for his opinion about his own abilities and intelligence? Did he think he was smarter than other people? What about Walter and Larry? How did they feel about themselves? What were these three characters trying to achieve by bullying other people?

### It's tattling to tell an adult when you're being bullied or see someone else being bullied

**Answer: False.** It's smart to tell an adult who can help you do something about bullying. It's also smart to tell an adult if you see someone else being bullied. Bullying is a form of victimization or peer abuse. Just like we do not ask victims of other forms of abuse (child abuse) to stay quiet and deal with it themselves, we should not expect victims of bullying to remain silent.

**Discussion:** In the story, the 6<sup>th</sup>. graders didn't tell anyone that Walter and Larry were taking their money. They were afraid of being beaten up. But when other children saw the bullying and told their teachers, the stealing stopped. Chris said anyone who told was a "snitch." Why is it braver to report bullying than to turn away and ignore it? Why does fear of being called a snitch play into the hands of bullies? Is calling someone a snitch making bullies more powerful?

**The best way to deal with a bully is by fighting or trying to get even**

**Answer: False.** If you fight with a bully, someone might get hurt. Plus, you might get into trouble for fighting. If you try to get even, you're acting the same way as the bully and your acts may contribute to the bullying continuing or getting worse. Either way, fighting only makes things worse. Better solutions are ignoring the bullying, telling the bully to stop in a clear and calm way, using humor to change the situation, and telling a trusted adult to get support.

**Discussion:** Neither Rain nor Hummingbird or any of their friends dealt with Chris's bullying by fighting, nor did they try to play any dirty tricks on Chris to get even. How did they deal with the situation? What did they do to protect themselves? Did Granma's recommendation that they "stick together" work?

**People who are bullied might hurt for a while, but they'll get over it**

**Answer: True and False.** The effect of bullying really depends on the person and the situation. Bullying can have serious effects that can last a lifetime. Bullying can result in physical injury, social and emotional distress, and even death. Victimized youth are at increased risk for depression, anxiety, sleep difficulties, and poor school adjustment, and these difficulties can continue even after the bullying stops.

**Discussion:**

- Chris was bullied by his stepbrothers for years. Do you think he will easily forget their bullying? Do you think he will need help in trying to get over his anger? Will he need help in learning how to relate to other children and his family in another way? What kind of help will he need? Does Coyote think that there is hope for Chris?
- As for Larry, how did he feel about being called Tater Tot? Had the nickname hurt him for a long time?
- How had Simon's confidence been affected by his cousin's ridicule? Did Rain and Boomer convince him to join the drum group? Did he join in the Grand Entry at the pow-wow? Why not?
- Why do you think Hummingbird and Arianna were able to get over Chris's bullying so quickly?



## HUMMINGBIRD'S SQUASH SOCIAL STUDIES

### Appendix 5

#### BEING A GOOD RELATIVE

##### ACTIVITY 3

##### Steps to Stop Bullying

### Messages in *Hummingbird's Squash* that Address Bullying

#### Messages that involve the actions of students

- Talk to your parents and teachers if someone is bullying you.
- Tell your teacher if you see someone bullied at school. Don't be a bystander that does nothing.
- Avoid fighting if you are bullied.
- Stick with your friends if someone is bullying you. Don't be alone.
- Support your friends if they are upset about being bullied.
- Accept apologies and offers of friendship from children who seek to make amends for bullying.
- Don't exclude others from school activities.
- Damaging the property of others for the purpose of hurting them is bullying.
- Gossiping or spreading rumors at school (including spreading rumors on the Internet) are forms of bullying.

#### Messages that involve the actions of school administrators and teachers

- Pay attention to children's reports of bullying.
- Teachers should intervene in bullying situations.
- Schools should assign teachers to oversee school grounds and activities.
- There should be consequences for bullying behavior.
- Teachers should report incidents and children's reports of bullying to the principal.
- Schools should seek to understand the circumstances of bullying situations and investigate reports of bullying.
- Principals should inform parents about their children being bullied or bullying others. They should also offer advice and resources to help children stop bullying and support those who have been bullied.
- Schools should educate children about bullying and work on adopting anti-bullying policies that teachers, parents, and children understand and support.
- Schools should seek ways to support children in changing the behaviors that promote bullying.

### Messages that involve the actions of parents and families

- Take children's reports of bullying seriously.
- Communicate with the school about bullying incidents your child reports.
- Give appropriate anti-bullying advice to children.
- Take the school seriously if the principal or a teacher reports to you that your child is involved in bullying.
- Seek to understand why your child is bullying others.
- Try to understand the effects of your child's bullying on others.
- Seek help as a family when looking for programs to help a child stop bullying.
- Parents of bullies and children who have been bullied should seek non-confrontational resolutions to the situation.

### Messages aimed at community members

- Support children's wants and needs to be involved in community activities that build self-esteem and belonging.
- Offer positive experiences and appropriate advice to others about community services.





## HUMMINGBIRD'S SQUASH SCIENCE PART 1: INVESTIGATION 1

### Appendix 6

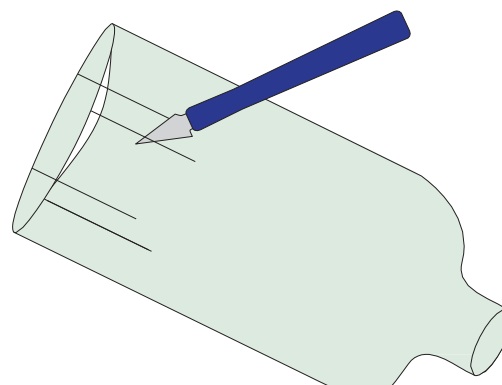
### INVESTIGATING ECOSYSTEMS

#### ACTIVITY 1

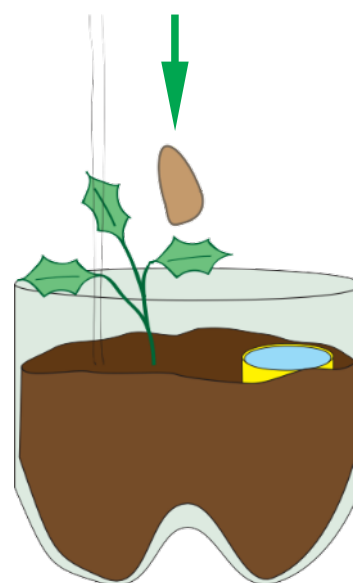
#### Terrarium in a Bottle

**Reassembly of the Bottle:** Make sure soil is moist before re-assembling the bottle. To re-assemble, push the bottom of the top part of the bottle into the top of the bottom part of the bottle containing the soil and plants. The top piece should fit inside of the bottom piece and overlap by about 1/2 inch. Then tape the seam closed all the way around with 2-inch wide clear packing tape.

To add worms and insects, remove lid, drop them in, and re-seal the lid.



1/2 inch vertical cuts



Plant plants and seeds  
before assembling



## HUMMINGBIRD'S SQUASH SCIENCE PART 1: INVESTIGATION 1

### Appendix 7

#### INVESTIGATING ECOSYSTEMS

##### ACTIVITY 4

##### Understanding Adaptations — Predator/Prey

#### Sample Data Table

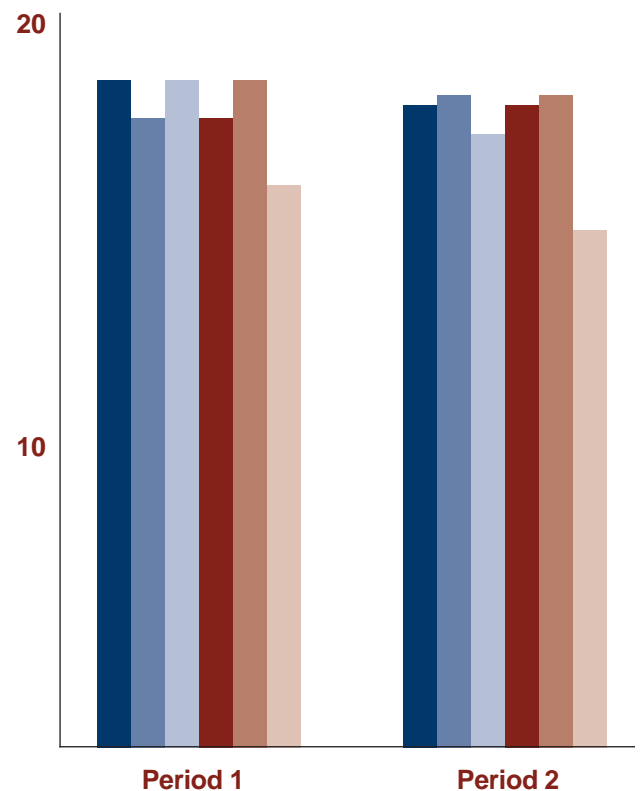
Ecosystem Prey Population

##### Number of Species Remaining

Period	Red	Blue	Yellow	Orange	Green	White
0	20	20	20	20	20	20
1						
2						
3						
4						
5						

#### Sample Bar Graph

Number Remaining





## HUMMINGBIRD'S SQUASH SCIENCE PART 1: INVESTIGATION 1

### Appendix 8

#### INVESTIGATING ECOSYSTEMS

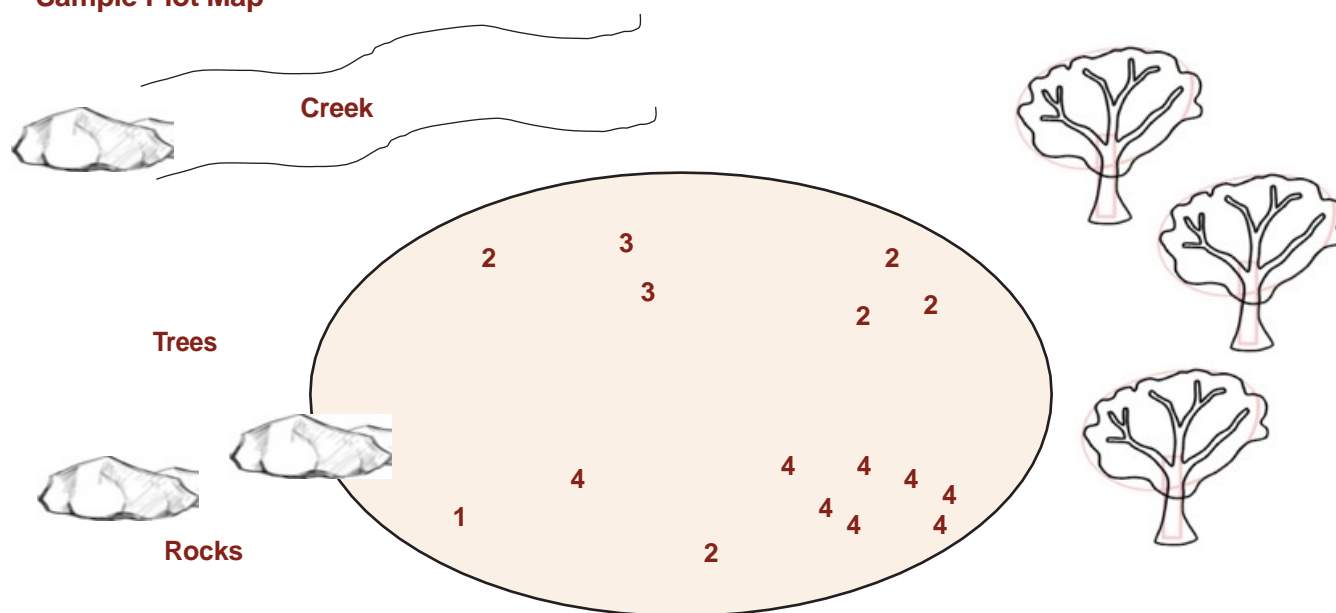
##### ACTIVITY 5

**Why “Many” and “Different” are  
Healthy—A Look at Biodiversity**

### Sample Site Survey and Species Key

Species	Name	Quantity	Type
#1	cricket	1	Animal
#2	broad leaf of grass	5	Plant
#3	dandelion	2	Plant
#4	ants	8	Animal

#### Sample Plot Map





## HUMMINGBIRD'S SQUASH SCIENCE PART 1: INVESTIGATION 2

### Appendix 9

#### GETTIN' DIRTY: HEALTHY SOILS

##### ACTIVITY 1 Are All Soils Alike?

#### Sample Data Table

Soil Layer	Color	Dry Texture	Wet Texture	% Plant (Vol)	% Animal (Vol)	% Inorganic (Vol)	Observations
1 (Top)							
2							
3							
4							
5							
6							



## HUMMINGBIRD'S SQUASH SCIENCE PART 1: INVESTIGATION 2

### Appendix 10

#### GETTIN' DIRTY – HEALTHY SOILS

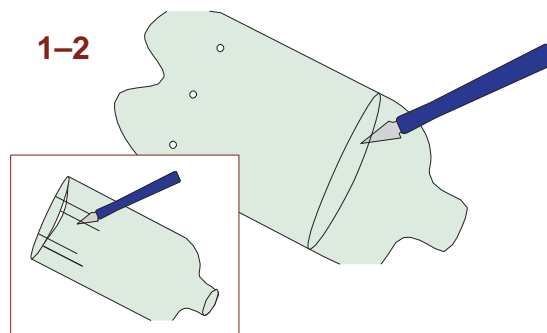
##### ACTIVITY 2

##### Improving Soils—Composting

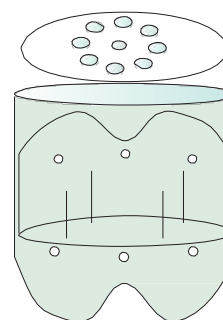
### Procedure

- 1** Cut the first bottle 8 inches up from the bottom and make air holes around the bottom just below where the bottle straightens out. Discard the top of the bottle.
- 2** Cut the second bottle about 2.5 inches from the bottom. Cut four vertical half-inch slits in the bottom to help it fit inside the other bottom section.
- 3** Place the second bottom upside down inside of the first bottom section.
- 4** Trim the plastic container lid to a diameter just smaller than the bottom bottle section.
- 5** Make air holes in the plastic lid.
- 6** Place the lid on top of the inverted bottom inside of the first bottle bottom.
- 7** Trim the bottom edge of the top portion of the second bottle so that it is seven inches long from top to bottom.

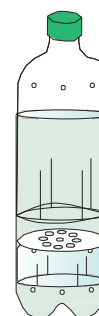
1–2



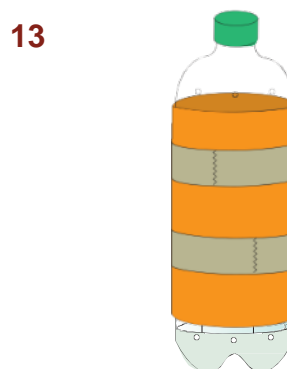
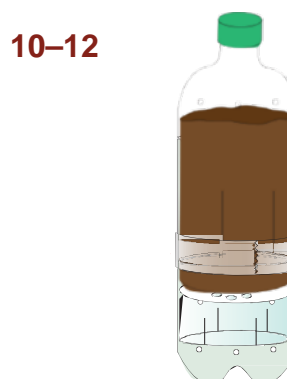
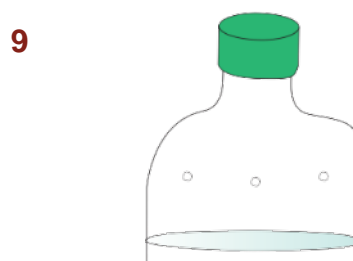
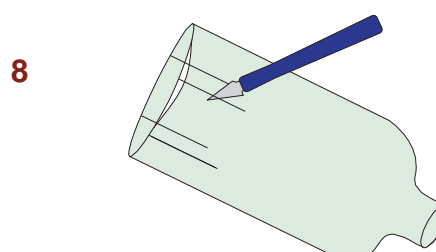
3–6



7



- 8** Cut four vertical half-inch slits on the bottom edge of the top portion of the second bottle.
- 9** Make air holes near the top of the second bottle.
- 10** Add compost material on top of the plastic lid in the bottom section.
- 11** Place the top section into the lower section. The sections should overlap about one half inch. Cap the bottle.
- 12** Tape the seam at the overlap with two-inch clear plastic tape.
- 13** Between observations, wrap the middle of the bioreactor with cloth or other insulating material and secure with tape or rubber bands. Be sure not to cover the air holes.
- 14** When making temperature observations, a thermometer can be inserted through the top by removing the cap.





# HUMMINGBIRD'S SQUASH

## SCIENCE PART 1: INVESTIGATION 3

### Appendix 11

## PRODUCERS AND CONSUMERS

### ACTIVITY

#### Investigating Natural Fertilizers – Plant Growth

For each egg carton the students set up, they will need a separate data table like the one below. The title should include all of the information about what is contained in the wells: seed type, fertilized or unfertilized soil, and type of fertilizer, if used. The students should have 12 rows and columns for the number of days they measure the plants' growth (14-21 days).

### Sample Plant Growth Data Record

Carton #: descriptions of seed type, type of soil, etc.

Well #	Day 3	Day 4	Day 5	Day 6
1	Height Color # of leaves # of branches	Height Color # of leaves # of branches	Height Color # of leaves # of branches	Height Color # of leaves # of branches
2	Height Color # of leaves # of branches	Height Color # of leaves # of branches	Height Color # of leaves # of branches	Height Color # of leaves # of branches
3	Height Color # of leaves # of branches	Height Color # of leaves # of branches	Height Color # of leaves # of branches	Height Color # of leaves # of branches
4				
5				
6				