

August 17 - August 27

## EARTH SCIENCE

- 1) Pre-Test
- 2) Introduction to the Scientific Method
- 3) Observation: Potato chip Activity
- 4) Scientific Method Worksheet
- 5) Simple Inquiry Lab
- 6) Lab Safety Reading Comprehension
- 7) Lab Safety Test



**Test Name: RCK12 Science Sixth Grade Pre-Assessment - Unit 1**

1. What is the measure of how easily a mineral can be scratched?
  - A. luster
  - B. cleavage
  - C. hardness
  - D. fracture
  
2. Which kind of rock forms from material that settles on the ocean floor?
  - A. Igneous
  - B. Metamorphic
  - C. Sedimentary
  - D. lava
  
3. If you wanted to duplicate conditions in a laboratory that produced sedimentary rock, what would you need to do?
  - A. Apply high pressure to small particles of rock
  - B. Apply heat to small particles of rock
  - C. Apply heat and pressure to small particles of rock
  - D. Let the particles stand under water for a few weeks
  
4. Which is the hardest on the Moh's scale?
  - A. talc
  - B. diamond
  - C. quartz
  - D. feldspar

5. A mineral is a naturally occurring, inorganic, crystalline solid with a definite chemical composition. Which of the following is not a mineral?

- A. calcite
- B. quartz
- C. coal
- D. talc

6. Metamorphic rocks form from

- A. Layers of sediment being cemented together
- B. Cooling magma
- C. Heat and pressure causing types of rocks to change form
- D. All of the above

7. The table shows the properties of four different samples.

Sample	Hardness	Materials Inside
W	hard	two materials
X	soft	one material
Y	hard	one material
Z	hard	three materials

Which of the following is true of the objects?

- A. Samples W and Y are minerals, and samples X and Z are rocks.
- B. Samples W and Z are minerals, and samples X and Y are rocks.
- C. Samples X and Y are minerals, and samples W and Z are rocks.
- D. Samples X and Z are minerals, and samples W and Y are rocks.

8. On a recent field trip to a local river, the science class collected several rocks from the riverbed. The rocks were all smooth and rounded. Why were the rocks in the riverbed smooth?

- A. The minerals from which the rocks are made always have smooth edges.
- B. Rushing water in the river wore away any jagged edges on the rocks.
- C. Plants along the river released chemicals that wore down the rocks.
- D. The action of wind over time caused the rocks to become smooth.

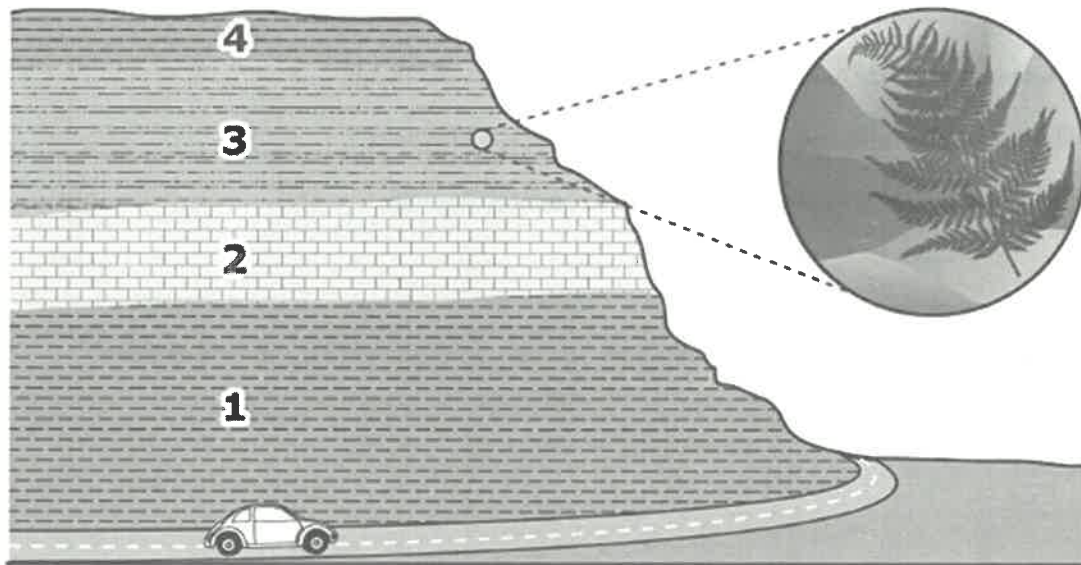
9. Which is NOT a property of rocks and minerals that can be discovered by looking at them?

- A. shape
- B. weight
- C. color
- D. texture

10. How are igneous rocks formed?

- A. by the cooling of metamorphic minerals and gas
- B. by the cooling of hot molten minerals and gas
- C. from layers of small bits of rocky material that settle in water
- D. from sedimentary rock that has been heated under high pressure

11. The diagram below shows rock layers next to a road.



Layer 3 contains many plant fossils. Layer 3 most likely formed in which of these environments?

- A. Desert
- B. Forest
- C. Ocean
- D. Tundra

12. Based on the Law of Superposition, what can be concluded about fossils?

- A. Fossils give clues about past climate patterns.
- B. Fossils form from the hard parts of organisms.
- C. The oldest fossils are found in the lowest rock layers.
- D. The most recent fossils were advanced organisms.

13. What can scientists learn from a fossil of a woolly mammoth found on the deep ocean bottom?

- A. that large ocean mammals have evolved from the woolly mammoth into other species
- B. that woolly mammoths could, at one time, live under water and did not need air to breathe
- C. that all of Earth was once an ocean and land masses have grown out of the water over time
- D. that the land was above water and the water level rose over time and covered the land

14. Moose can only survive in colder climates. Which would **most likely** explain finding moose fossils in an area with a warm climate?

- A. All organisms used to be able to survive in warm climates.
- B. The fossils were washed to the area by a current of water.
- C. The moose migrated to a warm area to reproduce.
- D. The area used to have a much colder climate.

15. A scientist studied animal fossils he found in layers of earth in the side of a cliff. He put his findings in the table below.

Bottom layer	Mammoth	Cold
Middle layer	Bear	Moderate
Top layer	Lizard	Warm

Which conclusion **most likely** explains the different fossils?

- A. The climate in the area was warm during earlier time periods, became cooler in later time periods, and is now cold.
- B. The climate in the area was warm during earlier time periods, became colder in later time periods, and is now even colder.
- C. The climate in the area was cold during earlier time periods, became warmer in later time periods, and is now even warmer.
- D. The climate in the area was cold during earlier time periods, became colder in later time periods, and is now warm.



**You have reached the end of this section.**



## Observation: Potato Chip Activity

Want to reinforce the concept of making good scientific observations? Grab a bag of chips! Another lab that's light on your budget, the potato chip lab helps to reinforce the importance of making detailed observations.

Step 1) Put a pile of chips in the center of a table.

Step 2) Grab a single chip from the center and observe its characteristics (what does it look like, is it smooth, grainy, color, etc.).

Step 3) Write a detailed description AND draw a picture of each chip and carefully add it back to the pile.

You will repeat each step with ***five*** chips. In the description, be sure to include **3** facts about each chip.



## The Scientific Method

### Cross-Curricular Focus: Science Investigation



Scientists study the world and learn about how it works. As they study the world, the scientists use a process called the scientific method. They ask important questions and search for the answers. Sometimes they make amazing discoveries! There are times when a scientist is unable to answer his own question. If he has taken good notes, another scientist may come along later and use his notes to find the answer. Every year there is new knowledge.

The scientific method is a step-by-step process. You can use it to **conduct an experiment**. You start by making **observations** about something that interests you. Based on your observations, you make a hypothesis. A hypothesis is a smart guess you make by using what you know. You guess what you think could happen. Now you are ready to begin your experiment.

During your experiment you should take notes. These notes are your experiment data. You constantly make observations during this time. You may discover things that make you to revise your experiment. Eventually, you conclude your experiment. Next, you begin to look over your notes. You decide what you found out in your experiment. You make a final statement about whether or not your hypothesis was correct. You use reasons and evidence to support your statement.

Using the scientific method can be challenging. However, it can also be rewarding. All the steps are organized in a process. When you provide observations and data as evidence to support your conclusion, your ideas are more likely to be accepted.

Name: \_\_\_\_\_

Answer the following questions based on the reading passage. Don't forget to go back to the passage whenever necessary to find or confirm your answers.

1) What is the scientific method?

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2) When you find something that interests you, how do you make a hypothesis?

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3) Why is it important to take good notes when you are conducting an experiment?

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4) What is the last step in the scientific method?

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5) Name one thing you might like to investigate this year for a science project.

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**Scientific Method**  
**Bikini Bottom Experiments**

Name \_\_\_\_\_

**The Bikini Bottom gang loves science class and wanted to do a little research. Read the description for each experiment and use your knowledge of the scientific method to answer the questions.**

**(1) Flower Power**

SpongeBob loves to garden and wants to grow lots of pink flowers for his pal Sandy. He bought a special Flower Power fertilizer to see if will help plants produce more flowers. He plants two plants of the same size in separate containers with the same amount of potting soil. He places one plant in a sunny window and waters it every day with fertilized water. He places the other plant on a shelf in a closet and waters it with plain water every other day.

What did SpongeBob do wrong in this experiment? Explain.

What should SpongeBob do to test the effectiveness of Flower Power fertilizer? Write an experiment.

**(2) Super Snails**

Gary is not the smartest snail in Bikini Bottom and believes he can improve his brain power by eating Super Snail Snacks. In order to test this hypothesis, he recruits SpongeBob and several snail friends to help him with the experiment. The snails ate one snack with each meal every day for three weeks. SpongeBob created a test and gave it to the snails before they started eating the snacks as well as after three weeks.

Based on the data provided, do the Super Snail Snacks work? Explain your answer.

Test Results		
Snail	Before	After
Gary	64%	80%
Larry	78%	78%
Barry	82%	84%
Terry	72%	70%

**(3) Bubble Time**

Patrick loves bubble gum and would like to be able to blow bigger bubbles than anyone else in Bikini Bottom. To prepare for the Bikini Bottom Big Bubble Contest, he bought five different brands of bubble gum and needs your help to find the brand that creates the biggest bubbles. Write an experiment to test the bubble power of the bubble gum brands and help Patrick win the contest.



## Simple Inquiry Lab

Take a piece of newspaper or copy paper and hypothesize about how many times you can fold the piece of paper in half. Think about the best way that you can accomplish this task and detail out the steps you will take to achieve your end goal.

Step 1) Hypothesis: How many times can you fold the paper in half?

Answer:

Step 2) Perform lab

Step 3) How many times were you able to fold the paper in half? Was your hypothesis correct or incorrect?







Name \_\_\_\_\_

## Safety in the Lab

By Patti Hutchison

Plastic, penicillin, and rubber - what do they all have in common? They were all made in a laboratory. In fact, most historic scientific discoveries happened in a laboratory. Chances are you will be working in the science lab this year. You will be performing experiments and using equipment that scientists use. It is important to practice safety in the lab. Here are some important tips to keep in mind.

The most important safety rule is to always follow instructions. These may be instructions your teacher gives you. They might be instructions that you have to read in a book or manual. Always follow directions exactly as stated. Even if you think you know a "better" way to do something, do it the way the directions tell you.

Reread instructions several times. If you don't understand something, ask your teacher to explain it to you. Your grandmother would say, "It's better to be safe than sorry." This means that if you get hurt in the lab, you'll be sorry that you didn't ask for help.

You need to think about what you are wearing when you are in the lab. You should always remove loose jewelry. If you have long hair, always tie it back. You don't want to let these things touch chemicals or flames that you might be working with.

Protect your clothing with a lab coat or shop apron. You may also need to wear rubber gloves. Always wear safety goggles when you are working with any substance that can get in your eyes. Don't worry about not looking cool. Safety is more important. Besides, everyone in your class will look just like you!

Always be careful not to spill anything when you are working in the lab. If you do spill something, ask your teacher about the proper way to clean it up. Some chemicals may harm your skin or other surfaces.

Always ask about the proper way to dispose of chemicals.

Never mix chemicals unless you are told to. You might produce a dangerous substance. It could be poisonous or explosive. Never touch, taste, or smell a chemical you do not know. Keep lids closed when you are not using the chemicals.

At some time, you will probably have to heat something up in the lab. Always be aware of hot surfaces. Remember that they can stay hot long after the heat source is removed. Use tools as directed by your teacher for handling hot pieces of equipment. Clamps and tongs are especially useful for handling hot test tubes.

Sometimes you will be asked to use a scalpel or a razor blade. Handle these objects very carefully. Always cut away from your body; do not move the blade toward any part of your body. If you do get cut or hurt in any way, tell your teacher at once.

When you are finished with your experiment, always clean up properly. Shut down all heat sources. Return all equipment to its proper place. And, of course, wash your hands!

Working in the lab can be an exciting part of your science program. With caution and proper procedures, you will be safe and able to enjoy your lab time.

Safety in the Lab

## Questions

\_\_\_\_\_ 1. What is the most important safety rule?

- A. Have fun
- B. Always follow directions
- C. Do whatever you want to do

\_\_\_\_\_ 2. If you don't understand something, you should:

- A. Ask your teacher to explain it to you.
- B. Try to figure it out on your own.
- C. Ask your lab partner.



Name \_\_\_\_\_

3. Why should you tie back loose hair and remove loose jewelry?

- A. so you look better
- B. so you can put on your shop apron
- C. so that it doesn't touch chemicals or flame

4. If you spill something, you should:

- A. Pour water on it.
- B. Wipe it up with your sleeve.
- C. Ask your teacher the proper way to clean it up.

5. Why should you never mix chemicals unless you are told to?

- A. you could produce a harmful substance
- B. it might be fun
- C. it would be cool

6. Hot surfaces:

- A. can stay hot long after the heat source is removed
- B. can be touched after a minute or two
- C. cool down immediately

7. When using a knife or scalpel  
always cut \_\_\_\_\_  
A. away from you

- B. towards you
- C. with your eyes closed

True or False

8. It is ok to not follow the lab instructions if you know a "better" way

- A. True
- B. False

9. Plastic, Penicillin and rubber were all made in a lab

- A. True
- B. False

10. It is always important to follow all lab safety rules in the lab

- A. True
- B. False

# SCIENCE SAFETY TEST

- If a fire erupts, immediately
  - notify the teacher.
  - run for the fire extinguisher.
  - throw water on the fire.
  - open the windows.
- Approved eye protection devices (such as goggles) are worn in the laboratory
  - to avoid eye strain.
  - to improve your vision.
  - only if you do not have corrective glasses.
  - any time chemicals, heat, or glassware are used.
- If you do not understand a direction or part of a laboratory procedure, you should
  - figure it out as you do the lab.
  - try several methods until something works.
  - ask the teacher before proceeding.
  - skip it and go on to the next part.
- After completing an experiment, all chemical wastes should be
  - left at your lab station for the next class.
  - disposed of according to your teacher's directions.
  - dumped in the sink.
  - taken home.
- You have been injured in the laboratory (cut, burned, etc.). First you should
  - visit the school nurse after class.
  - see a doctor after school.
  - tell the teacher at once.
  - apply first aid yourself.
- Long hair in the laboratory must be
  - cut short.
  - held away from the experiment with one hand.
  - always neatly groomed.
  - tied back or kept entirely out of the way with a hair band, etc.
- Which of the following should NOT be worn during a laboratory activity?
  - loose clothing
  - dangling jewelry
  - sandals
  - All of the above.
- Horseplay, practical jokes, or pranks in the classroom are
  - always against the rules.
  - okay.
  - not dangerous.
  - okay if you are working alone.
- When handling animals, students should
  - open cages only with permission.
  - not tease or handle animals roughly.
  - report bites or scratches to the teacher immediately.
  - All of the above.
- If a piece of equipment is not working properly, stop, turn it off, and tell
  - the principal.
  - your lab partner.
  - your best friend in the class.
  - the teacher.
- When you finish working with chemicals, biological specimens, and other lab substances, always
  - treat your hands with skin lotion.
  - wash your hands thoroughly with soap and water.
  - wipe your hands on a towel.
  - wipe your hands on your clothes.
- The following activity is permitted in the laboratory:
  - chewing gum
  - eating
  - drinking
  - None of the above.

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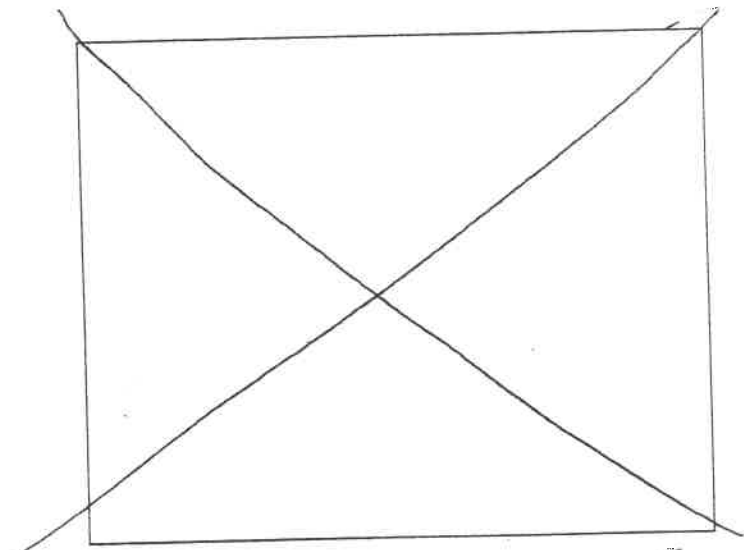
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- 19.   Never remove chemicals, specimens, or other equipment from the laboratory.
- 18.   Laboratory work may be started immediately upon entering the laboratory even if the teacher is not yet present.
- 17.   Work areas should be kept clean and tidy.
- 16.   All chemicals in the lab (including foodstuffs and store-bought chemicals) should be treated as if they could be hazardous.

True—False  
T F

- 20.   Always carry a microscope using both hands.
- 21.   Read all procedures thoroughly before performing a laboratory investigation.
- 22.   All unauthorized experiments are prohibited.
- 23.   You are allowed to enter the chemical preparation/storage area any time you need to get an item.
- 24.   It is okay to pick up broken glass with your bare hands as long as the glass is placed in the trash can.
- 25.   Do not leave a lit burner unattended.

- 13. When using a razor blade or scalpel, always cut material
  - A. away from you.
  - B. toward you.
  - C. in your hand.
  - D. perpendicular.
- 14. Before you leave the science room, you should
  - A. clean your work area and equipment.
  - B. return all equipment to the proper storage area.
  - C. wash your hands with soap and water.
  - D. All of the above.
- 15. Draw a diagram of your science room and label the locations of the following:
  - Fire Blanket
  - Fire Extinguisher(s)
  - Exits
  - Eyewash Station



- Emergency Shower
- Waste Disposal Containers
- Fume Hood
- Emergency Shut-off (gas, water, or electric)