Name: _____ Date: _____

SKILL and PRACTICE 1.2

Observations versus Opinions

READ

An observation is an accurate description of a thing or an event. An observation is a statement of fact. Here are some examples of facts based on evidence or observation:

- $2 + 2 = 4$
- The Sun is the center of our solar system.
- My pizza has cheese and mushrooms on top of it.

These observations or facts can be proven to be true. On the other hand, an opinion about a subject is unique to the person that has that opinion. Opinions are based on one's experiences or beliefs. Here are some examples of opinions:

- Math is fun!
- In ten years, more people will be driving hybrid cars than will be driving gasoline-only powered cars.
- I don't like mushrooms on my pizza.

Now, practice identifying and interpreting observations and opinions.

PRACTICE

1. The mathematical statement, $2 + 2 = 4$, is a fact. Imagine you have a bunch of apples. How could you use the apples to prove this statement is a fact?

2. The mathematical statement, $10 \div 2 = 5$, is a fact. Imagine you have a 10 oranges. How could you use the oranges to prove this statement is a fact?

3. The statement, Earth rotates one time each day (24 hours), is a fact. List some pieces of evidence that support this fact.

4. The statement, "Math is fun!" is an opinion. How can you prove that this statement is an opinion? Write a short paragraph to answer this question.

5. Your teacher has ordered three pizzas for your class. One is a cheese pizza, one is a cheese and mushroom pizza, and one is a cheese and pepperoni pizza. After lunch, you notice that the cheese pizza is all gone. You also notice that half of the pepperoni pizza is left over and half of the cheese and mushroom pizza is left over. Make a statement of fact about this situation based on this pizza data.

6. Your school wants to pick new school colors. You would like the colors to be green and yellow. A survey of all the students reveals that 60% of the students prefer blue and yellow, 15% prefer green and yellow, and 25% prefer red and yellow. From this scenario, state one opinion and one observation.

7. Next year, you will be one year older and in the next grade. State one opinion about next year. Now, state one fact about next year that you know to be true.

8. A hypothesis is a type of opinion based on observations and evidence. If a hypothesis is proven by one experiment, it may be true. However, in science, many experiments need to occur to fully test a hypothesis. From the following data collected by growing four plants grown under different colors of light, state a hypothesis.

Color of light	White light	Blue light	Green light	Red light
Plant number and height	#1, 10 cm	#2, 8 cm	#3, 5 cm	#4, 7 cm

9. The five senses are seeing, hearing, touching, tasting, and smelling. Each of these senses can be valuable in making observations.
Imagine that you are at a baseball game. What kinds of things would you see, hear, touch, taste, and smell at a baseball game? In the table below list possible observations for each sense. In the next column, list an opinion related to each sense.

Sense	Observation	Opinion
Seeing		
Hearing		
Touching		
Tasting		
Smelling		

10. Here is a bar graph of transportation energy use in the United States. List five observations about this bar graph. Then, list two opinions that you can form from studying this graph.