Chapter I: SCIENCE

Unit 1: The Science Process Skills

The Science Process Skills are the skills or tools scientists use to investigate the world around them. The skills are also used to construct science concepts, discover new ideas, or to prove or disprove theories. The following are some basic science process skills every scientist needs to know. The process skills are not used in any specific order. The best scientists use all of the tools available to them.

Observation is using the five senses (seeing, hearing, feeling, smelling, and tasting) to identify or learn about an object or event. An example may include watching a goldfish to see if it swims in a certain pattern, or testing certain food items to identify the flavor.

Inferring means to form an idea from facts or the observations that are made. Continuing to use the goldfish as an example, a scientist may infer that a goldfish is ready to eat when it begins to swim in a specific pattern.

Classifying is placing things together that share the same properties into a group. While tasting different food items a scientist could group the salty, sweet, and sour into three separate groups.

A scientist would use measuring to find size, distance, area, volume, weight, temperature, mass, or weight of an object or event. While studying the goldfish the temperature of the water is taken to discover if it has any effect on the swimming patterns of the goldfish.

Communication is very important for scientists. They use effective communication to share information with others who may want to repeat an experiment or observation. Sharing the information about the taste of food could help change a recipe.

Prediction is stating the possible results of an event, idea, or experiment. The scientist may predict what a goldfish would do if it had to swim in cold water. While watching the fish the scientist may write down the information to discover if the prediction came true.

Interpreting data means gathering all of the information about an event, object, or experiment and use it to answer questions or solve problems. Gathering all of the information about the different tastes of food may solve why some people do not eat certain foods.

Using variables means to identify things in an experiment that either can be changed or controlled. In the example, the scientist might identify the size of the fish bowl, source of water, or time of day as a variable that can be changed or controlled.

Hypothesizing is one of the most used tools for a scientist. It is making a statement that can be tested to answer a question. After the different goldfish observations, a hypothesis could be: Goldfish will swim in

different patterns depending on the temperature of the water. The hypothesis could then be tested by other scientists and proved or disproved.

The science process skills are important tools for scientists. Some of the other process skills include experimenting, using numbers, making models, and recording conclusions and results. The science process skills are the basic tools scientists use to investigate the objects and events in the world and throughout the universe.

Tick the correct answer

1) ***Which of the following is the best science process skill to use by a scientist who is reading information written by Albert Einstein?***

A: Classifying
B: Measuring
C: Interpreting data
D: Predicting

2) ***Which of the following is the best science process skill to use by a scientist studying the migration of birds?***

A: Experimenting
B: Inferring
C: Using variables
D: Predicting

3) ***Which of the following is the best science process skill to use by a scientist deciding what might happen when a hamster is placed in a maze?***

A: Predicting
B: Classifying
C: Interpreting data
D: Observing

4) ***The scientist was looking outside the window of the lab and saw that the sidewalk was wet NAD told the other scientist it must have rained. This is an example of***

A: Interpreting data
B: Inferring
C: Hypothesizing
D: Observing

5) ***When a worm is placed inside a boxful of soil, it will dig its way to the bottom. The statement is an example of which of the following?***

A: Observation
B: Inferring
C: Measuring
D: Hypothesizing

6) ***It is important to use effective communication because***

A: Other scientists may want to read about an experiment, observation, or event
B: Scientists might be working on something similar and will use the information to help with their research
C: Another scientist might interpret the information differently
D: All of the above

VOCABULARY

Fill in the blanks with the right words from the box

tool	science notebook	variable	procedure	hypothesis	observing	scientific method	accurate data	testable question	evidence

1. Scientists do an investigation at least 3 times to make sure the data is _____ , or correct.
2. While doing an investigation, scientists collect information called _____.
3. Scientists must provide _____ , or proof of their claims.
4. When scientists use their 5 senses to collect data, they are _____.
5. Scientists make a _____ , or a prediction to their science question.
6. The steps needed to complete a task are known as the _____.
7. _____ _____ is the most important tool a scientist uses. It is used to record notes and data.
8. When completing an investigation, a scientist must use the _____ _____.
9. A _____ is a question that can be investigated and includes 1 variable.
10. A triple beam balance is an example of a _____ , which is an object used in science to observe, be safe, or measure.
11. The _____ is what is changed in an investigation; what is being tested.

GRAMMAR

Tenses Review

Choose the correct tense for each sentence

1. After Jonathan _____ his degree, she intends to work in an office.	will finish – will have finished – finished – is finishing
2. Lola looked down to discover a snake at her feet. When she saw it she _____.	screamed – was screaming – had screamed - screams
3. I borrowed four books on gardening the last time I _____ to the library.	go – went – had gone – have gone
4. By the time I go to bed tonight I _____ my work for the day	will finish – have finished – will have finished - finish
5. Mark Twain _____ up in a small town in Mississippi.	was growing up – had grown up – grew up – has grown up
6. When my parents _____ tomorrow, they will see our new baby for the first time.	will arrive – arrive – will have arrived – arrived
7. Until you learn how to take a break, you _____ your ability to speak English.	haven't improved – aren't improving – don't improve – won't improve
8. My grandfather _____ in an airplane before, so this is his first time.	never flies – had never flown – has never flown – never flew
9. I _____ in this city since I was a small child.	have been living – am living – had been living – lived
10. While I _____ TV last night a small mouse ran across the room.	watched – have watched – watch – was watching
11. Jane isn't here yet. I _____ since noon but there is no sign of her.	have waited – am writing – wait – have been waiting

12. By the time my brother finally graduated from high school, he _____ seven different schools.	attended – was attending – had attended – had been attending
13. On June 20th I returned home. I _____ for almost two years.	was away -have been away – am away – had been away
14. When I got to the party, many people _____.	were already dancing – already danced – had already danced – have already danced.
15. Before I started the car, all of the passengers _____ their seat belts.	will buckle – will have buckled – had buckled – buckle
16. Right now we _____ a heat wave. It's been so hot for almost a week.	have – have had – have been having – are having
17. When I go and see the doctor this afternoon I _____ him to take a look at my throat.	will ask – asked – will have asked – ask
18. sent you the money almost a week ago but I still _____ any confirmation.	I hadn't received – didn't receive – haven't received – am not receiving
19. After they _____ the race the celebrations began.	won – have won -win – had won
20. Our football team _____ a football match until last season, when the new coach came.	never wins – has never won – had never won – never won
21. I _____ all the questions correctly since I began the course.	had answered – have been answering – have answered – answered
22. It's against the law to kill whales. They _____ extinct.	have become – become – became – are becoming
23. Jim, why don't you take some time off. You _____ too hard lately.	are working – were working – had been working – have been working
24. Next month I have a week's vacation. I _____ on going on a trip to the Rockies.	am planning – have planned – will plan -will be planning
25. I'll be right with you as soon as I _____ my keys.	will find – found – find – will have found