# UNIT 2

A–1: Science as Inquiry Process

# KEY VOCABULARY

# Key Vocabulary

**CONDUCT**

*skillful guidance*

**PROCESS**

*a series of actions or operations that lead to an end*

**HISTORY**

*chronological record of significant events*

# *Key Vocabulary*

**ANALYZE**

*to carefully examine*

**RECORD**

*to keep facts, information, and data in written form*

**ENVIRONMENT**

*all external factors, living and non-living, that affect an organism*

# Key Vocabulary

**INVESTIGATE**

*a series of carefully controlled steps designed to discover or support a hypothesis and can be replicated or repeated*

**DATA**

*recorded observations from an experiment*

**INQUIRY**

*the examination of facts or assumptions*

# *Key Vocabulary*

**INTERACTION**

*to act upon on another*

# LESSONS

# Science Language for Success

*Introduce the key science vocabulary, using concrete materials and/or pictures.*

## LISTENING

*Use the Mini Pictures activity page from the Student Support Materials. Have the students cut out the pictures. Say the key words and the students show the pictures.*

### Locomotive

Have the students stand in a straight line in the center of the room. Each student should place his hands on the shoulders of the student in front of him/her. Mount a picture on each of the four walls in the classroom. Tell the students that when they hear one of the four vocabulary words (for the four pictures on the walls), they should step in that direction while still holding onto the shoulders of the players in front of them. Say the four words a number of times; the students should step toward the pictures as they are named.

### Funnel Vision

Before the activity begins, collect a large funnel. Have a student stand at the front of the classroom with his/her back to the other students. Give the student the funnel. Give the vocabulary pictures to the other students in the class. The students should hold their pictures up, facing the front of the classroom. Say a vocabulary word. When you say "Go," the student with the funnel should place the funnel over his/her eyes and turn to face the other students. The student must then look through the funnel to find the picture for the vocabulary word you said. This activity may be conducted with two players (each player having a funnel). The winner of each round is the student who locates the correct picture first. Have the students in the class exchange pictures for each new round of the activity. Repeat.

### Student Support Materials

Have the students work on the activity pages from the Student Support Materials from this unit.

## SPEAKING

### Flip of the Coin

Provide each student with a penny. Keep one penny for yourself. Mount the vocabulary pictures on the board. Have the students (gently) toss their pennies into the air. Each student should look to see which side of his/her penny is face-up. Toss your penny into the air in the same way. Call the side of your penny that is face-up. The students who have the same side of coin face up must then identify (orally) a vocabulary picture you point to. For example, if the heads side of your coin is face up, the students who have heads showing on their coins must then orally identify the vocabulary picture you point to. Repeat this process a number of times.

# *Science Language for Success*

## SPEAKING <span>(CONTINUED)</span>

### High Roller
Give a die to each of two students. When you say "Go," the students should roll their dice. The student who rolls the highest number on his/her die must then say a complete sentence about a vocabulary picture that you show. Repeat this process until many students have responded with sentences of their own.

## READING

*Introduce the science sight words to the students—match the sight words with the vocabulary pictures. The sight words are included in the Student Support Materials, attached to these lesson plans.*

### Word Length
Before the activity begins, cut a number of sight word cards into different lengths (e.g., 5 in., 15 cm., etc.). Place the sight word cards on the floor at one end of the classroom. Group the students into two teams at the other end of the classroom. Place two rulers on the floor beside the sight words. Say a different measurement to the first player in each team. When you say "Go," the first player in each team must rush to the sight word cards. Each player must then use the ruler to locate a sight word card that is the same length as the measurement you said. When a player has done this successfully, he/she should read the sight word on that card. Repeat until all players in each team have participated.

### What's Your Sequence?
Provide each student with four blank flashcards. Write four sight words on the board. Each student should write the same sight words on each of his cards (one word per card). When the students' cards are ready, have them arrange their sight word cards in a specific sequence on their desks (each student should determine his/her own sequence of words). Then, say a sequence of the four words. Any student or students who have their sight words in the same sequence as you said win the round. The winner or winners of this activity are those students who collect the greatest number of wins. The students may change the sequence of their sight word cards after each round of the activity.

### Letter Encode
Give each student his/her envelope that contains the alphabet letters. Mount one of the science pictures on the board. The students must use the cut out letters to spell the word for the picture. Review the students' work. Repeat, until all of the words have been spelled in this way.

# *Science Language for Success*

## WRITING
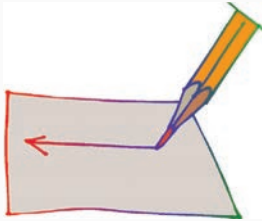
### Back Writing

Group the students into two teams. Have the first player from each team stand in front of the board. Use the index finger of your writing hand to "write" the first letter of a sight word on the two players' backs. When you have done this, say "Go." Each of the players should then write a sight word on the board that begins with that letter. Repeat with other pairs of players until all players in each team have played and until all sight words have been written a number of times.

### Word Completion

Before the activity begins, prepare clozure cards for the sight words; omit letters and syllables. Provide each student with a clozure card. Call upon the students to complete their words on the clozure cards by writing in the missing parts. Afterward, review the students' responses.

### Student Support Materials

Have the students work on the activity pages from the Student Support Materials for this unit.

# VOCABULARY PICTURES

# ANALYZE

# CONDUCT

# DATA

# ENVIRONMENT

# HISTORY

# INQUIRY

# INTERACTION

# INVESTIGATE

# PROCESS

# RECORD

# STUDENT SUPPORT MATERIALS

**Listening** • **Mini Pictures**

# Listening: Mini Pictures

Have the students cut out the pictures. Say the key math words from this unit, and the students should hold up the pictures for them.

# STUDENT SUPPORT MATERIALS

**Listening Comprehension**

# *Listening Comprehension*

*Read the following sentences to the students. The students should circle "true" or "false" for each of the sentences. Review the students' work.*

**1**    Conduct means skillful guidance.     **True** **False**

**2**    Process is the chronological record of significant events.     **True** **False**

**3**    History is a series of actions or operations that lead to an end.     **True** **False**

**4**    To analyze is to keep facts, information, and data in written form.     **True** **False**

**5**    Record is to carefully examine.     **True** **False**

**6**    The environment is all external factors, living and non-living, that affect an organism.     **True** **False**

**7**    Investigate is a series of carefully controlled steps designed to discover or support a hypothesis and can be replicated or repeated.     **True** **False**

**8**    Data is to act upon one another.     **True** **False**

**9**    Inquiry is the examination of facts or assumptions.     **True** **False**

**10**    Interaction is the recorded observations from an experiment.     **True** **False**

# STUDENT SUPPORT MATERIALS

**Sight Words**

**analyze**

**conduct**

**data**

**environment**

**history**

**inquiry**

interaction

investigate

process

**record**

# STUDENT SUPPORT MATERIALS

**Basic Reading**   •   **Sight Recognition**

# Sight Words Activity Page

*Have the students highlight or circle the words in this word find. Words appear horizontally.*

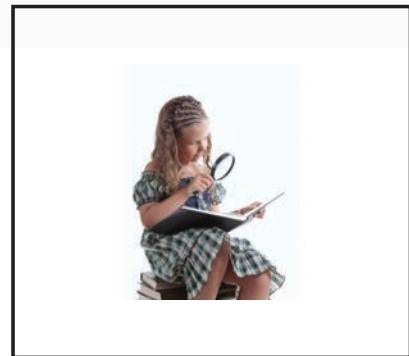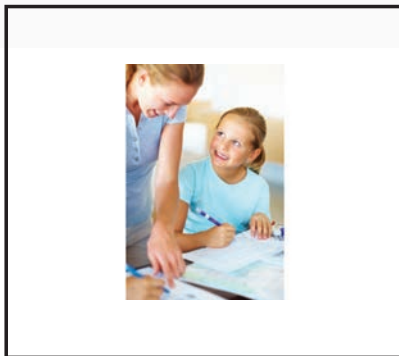| analyze | history | investigate |
|---------|---------|-------------|
| conduct | inquiry | process |
| data | interaction | record |
| environment | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I | N | T | E | R | A | C | T | I | O | N | N | H | C | X | K |
| N | P | D | H | Y | R | V | X | W | E | O | B | N | O | G | A |
| Y | H | E | A | B | N | P | X | Q | Y | U | N | B | N | I | E |
| Y | I | E | D | C | B | N | R | V | O | U | K | L | D | N | N |
| B | S | A | V | A | B | N | R | O | M | U | I | K | U | O | V |
| K | T | D | C | V | T | N | Z | E | C | I | P | K | C | B | I |
| G | O | N | E | Q | N | A | E | I | B | E | C | D | T | O | R |
| H | R | N | B | M | W | N | O | R | G | A | S | I | N | B | O |
| G | Y | W | C | N | T | I | P | K | M | R | A | S | O | I | N |
| F | G | U | X | A | N | A | L | Y | Z | E | L | N | V | I | M |
| Y | A | S | B | C | D | K | Y | N | Z | C | X | I | P | J | E |
| I | Q | B | C | I | P | L | N | F | T | O | V | Y | M | E | N |
| P | B | D | T | U | I | N | Q | U | I | R | Y | C | V | U | T |
| Q | F | X | N | T | A | C | R | W | B | D | F | Y | L | A | B |
| D | A | I | N | V | E | S | T | I | G | A | T | E | V | Y | E |
| R | H | J | L | F | O | I | J | S | Y | T | A | K | Q | V | Y |

# Sight Words Activity Page

*Have the students highlight or circle the words in this word find. Words appear horizontally.*
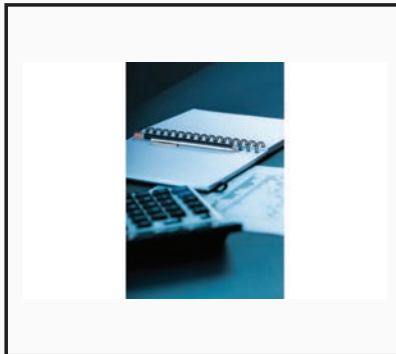
| analyze | history | investigate |
|---------|---------|-------------|
| conduct | inquiry | process |
| data | interaction | record |
| environment | | |

```
I  N  T  E  R  A  C  T  I  O  N           C
                                          O
   H              P                       N        E
   I     D           R                    D        N
   S        A           O                 U        V
   T           T           C              C        I
   O              A           E           T        R
   R                            S                  O
   Y                            R        S         N
         A  N  A  L  Y  Z  E                       M
                             C                     E
                             O                     N
            I  N  Q  U  I  R  Y                    T
                             D
      I  N  V  E  S  T  I  G  A  T  E
```
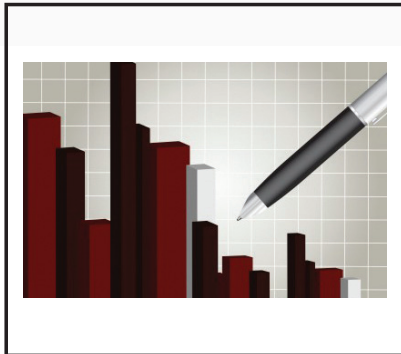
# Sight Words Activity Page

*Have the students cut out the key words and glue them at the bottom of their pictures.*
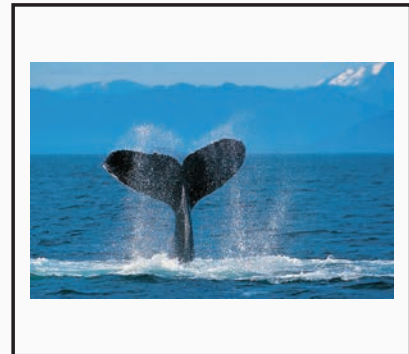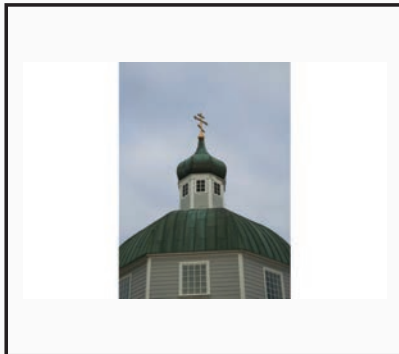
| analyze | conduct | data | environment |
|---------|---------|------|-------------|

| history | inquiry | interaction | investigate |
|---------|---------|-------------|-------------|

| process | record |
|---------|--------|

# Sight Words Activity Page

# Sight Words Activity Page

*Have the students print the key words from this unit horizonally in the boxes (each word may be written more than once). They should then fill in all other boxes with any letters. Have the students exchange pages. The students should then circle the words on the page.*

# STUDENT SUPPORT MATERIALS

**Basic Reading** ● **Encoding**

# *Encoding Activity Page*

*Have the students cut out and encode the syllables of the words, OR number the syllables in their correct sequence.*

| gate | in | vest | i |
|---|---|---|---|

_____ _____ _____ _____

| re | cord |
|---|---|

_____ _____

| ta | da |
|---|---|

_____ _____

# *Encoding Activity Page*

*Have the students cut out and encode the syllables of the words, OR number the syllables in their correct sequence.*

| a | an | lyze |
|---|----|------|

_____ _____ _____

| con | duct |
|-----|------|

_____ _____

| cess | pro |
|------|-----|

_____ _____

# Word Scramble Activity Page
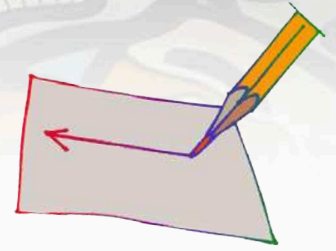
*Rearrange or unscramble the following letters to form one of the listed unit words. As you use a word, cross it off.*

| | | | | |
|---|---|---|---|---|
| history | data | process | analyze | environment |
| inquiry | conduct | investigate | record | interaction |

p s c s e o r        __ __ __ c e __ __

u i y n i r q        __ n __ __ __ __ y

i c n t o t e r n i a        __ __ t __ __ __ __ __ __ o n

t n v n i n e o r m e        __ __ __ i r __ __ __ __ n __

s t t n g a e i e i v        i __ __ __ __ t __ g __ __ __

o e c r d r        r __ c __ __ __

a e l n z y a        a __ a __ __ __ __

d a a t        __ __ t __

c c o u n t d        c __ __ d __ __ __

s y t o h r i        __ i __ __ o __ __

# STUDENT SUPPORT MATERIALS

**Reading Comprehension**

# Reading Comprehension Activity Page

*Have the students cut out the words and glue them under their definitions.*

| | | |
|---|---|---|
| skillful guidance | a series of actions or operations that lead to an end | chronological record of significant events |
| to carefully examine | to keep facts, information, and data in written form | all external factors, living and non-living that affect an organism |
| a series of carefully controlled steps designed to discover or support a hypothesis and can be replicated or repeated | recorded observations from an experiment | the examination into facts or assumptions |
| to act upon one another | | |

analyze      conduct      data      environment

history      inquiry      interaction      investigate

process      record

# *Reading Comprehension Activity Page*

Write the word or words that best complete each sentence in the space below.  Words may be used only once.

| | | | | |
|---|---|---|---|---|
| history | data | process | analyze | environment |
| inquiry | conduct | investigate | record | interaction |

**(1)** Sir Isaac Newton is a scientist recorded in _____ as the founder of the three laws of motion.

**(2)** The students had to _____ their experiment using the scientific method.

**(3)** The scientific method is a _____ that scientists use to investigate and find answers to questions.

**(4)** The science experiment required students to _____ data and to make graphs.

**(5)** The biology students are scheduled to _____ the bacteria under a powerful microscope.

**(6)** The students wanted to make an _____ about the new lab schedule.

**(7)** The students went on a field trip to explore the _____ of the nearby wetlands.

**(8)** The students were excited to learn that the interaction of magnesium and other _____ created a magnificent display of fireworks.

**(9)** Scientists _____ organisms by looking at their cells under a microscope.

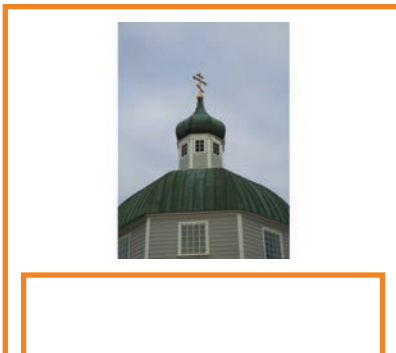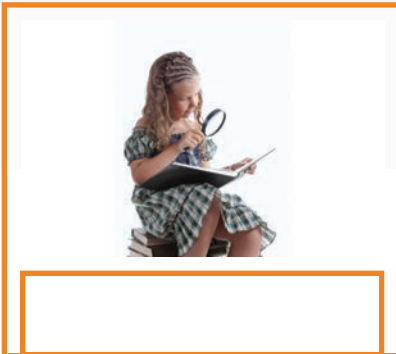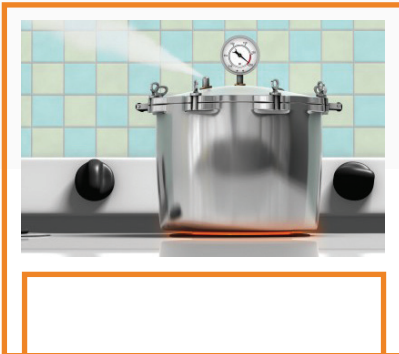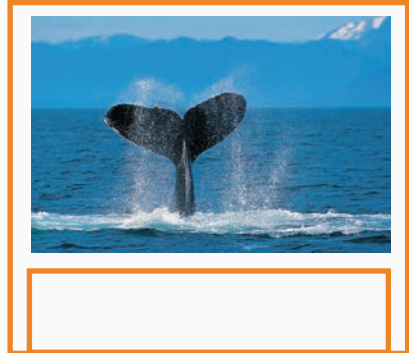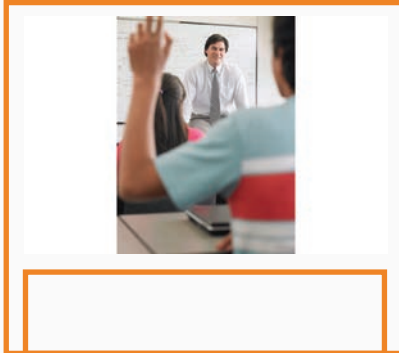**(10)** The chemistry students spent hours reviewing the _____ from the experiment.

# STUDENT SUPPORT MATERIALS

## Basic Writing
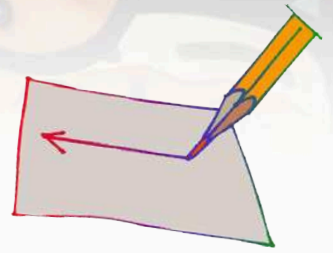
# Basic Writing Activity Page
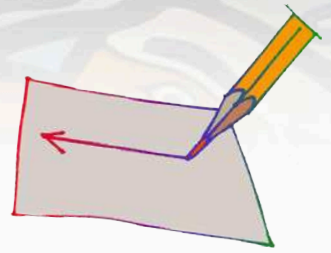
*Have the students write the word for each picture.*

# Basic Writing Activity Page

*Have the students write in the missing letters.*

a_____yze

con_____t

d_____a

environ_____t

hi_____y

in_____y

in_____action

in_____igate

p_____ess

re_____d

# Graphic Organizer

*Model the process for students using the following unit words.*

| WHAT IT IS: | WHAT IT IS NOT: |
|---|---|
| EXAMPLES: **analyze** | NOT EXAMPLES: |

| WHAT IT IS: | WHAT IT IS NOT: |
|---|---|
| EXAMPLES: **conduct** | NOT EXAMPLES: |

| WHAT IT IS: | WHAT IT IS NOT: |
|---|---|
| EXAMPLES: **data** | NOT EXAMPLES: |

| WHAT IT IS: | WHAT IT IS NOT: |
|---|---|
| EXAMPLES: **environment** | NOT EXAMPLES: |

| WHAT IT IS: | WHAT IT IS NOT: |
|---|---|
| EXAMPLES: **history** | NOT EXAMPLES: |

# *Graphic Organizer*

| WHAT IT IS: | WHAT IT IS NOT: |
|---|---|
| | |

**inquiry**

| EXAMPLES: | NOT EXAMPLES: |
|---|---|
| | |

| WHAT IT IS: | WHAT IT IS NOT: |
|---|---|
| | |

**interaction**

| EXAMPLES: | NOT EXAMPLES: |
|---|---|
| | |

| WHAT IT IS: | WHAT IT IS NOT: |
|---|---|
| | |

**investigate**

| EXAMPLES: | NOT EXAMPLES: |
|---|---|
| | |

| WHAT IT IS: | WHAT IT IS NOT: |
|---|---|
| | |

**process**

| EXAMPLES: | NOT EXAMPLES: |
|---|---|
| | |

| WHAT IT IS: | WHAT IT IS NOT: |
|---|---|
| | |

**record**

| EXAMPLES: | NOT EXAMPLES: |
|---|---|
| | |

# STUDENT SUPPORT MATERIALS

## Creative Writing

# *Creative Writing Activity Page*
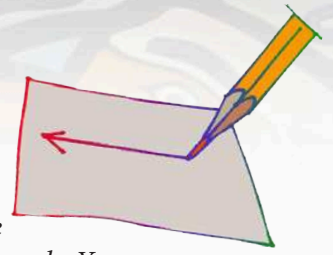
*Have the students write sentences of their own, using the key words from this unit. When the students' sentences are finished, have them take turns reading their sentences orally. The students should say "Blank" for the key words; the other students must name the "missing" words. You may wish to have the students write the "definitions" for the key words.*

**ANALYZE**

_____

**CONDUCT**

_____

**DATA**

_____

**ENVIRONMENT**

_____

**HISTORY**

_____

**INQUIRY**

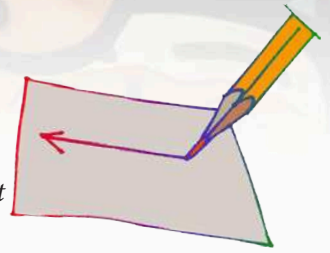_____

**INTERACTION**

_____

**INVESTIGATE**

_____

**PROCESS**

_____

**RECORD**

_____

# Creative Writing Activity Page

*On the lines below, write a paragraph based on the picture.  Before you begin writing, reflect on the unit words – analyze, environment, process, and history.*



_____

_____

_____

_____

_____

_____

_____

_____

# UNIT ASSESSMENT

**A–1: Science as Inquiry Process**

# SCIENCE PROGRAM

**Unit Assessment Teacher's Notes**
**Grade 7   •   Unit 2 (A–1)**
**Theme: Science as Inquiry Process**

**Date:_____**

# *Unit Assessment*

*Provide each student with a copy of the students' pages. Read the following instructions aloud. The students should answer the questions on their copies of the assessment.*

## BASIC LISTENING

Turn to pages 1 in your test. Look at the pictures in the boxes.

1. Write the number 1 on top of the picture for **ANALYZE**.

2. Write the number 2 on top of the picture for **CONDUCT**.

3. Write the number 3 on top of the picture for **DATA**.

4. Write the number 4 on top of the picture for **ENVIRONMENT**.

5. Write the number 5 on top of the picture for **HISTORY**.

6. Write the number 6 on top of the picture for **INQUIRY**.

7. Write the number 7 on top of the picture for **INTERACTION**.

8. Write the number 8 on top of the picture for **INVESTIGATE**.

9. Write the number 7 on top of the picture for **PROCESS**.

10. Write the number 8 on top of the picture for **RECORD**.

## LISTENING COMPREHENSION

Turn to page 2 in your test. Listen to the sentences I say. Circle "T" for true and "F" for false sentences."

1. Conduct means skillful guidance.

2. Process is the chronological record of significant events.

3. History is a series of actions or operations that lead to an end.

4. To analyze is  to keep facts, information, and data in written form.

5. Record is  to carefully examine.

6. The environment is all external factors, living and non-living that affect an organism.

7. Investigate is a series of carefully controlled steps designed to discover or support a hypothesis and can be replicated or repeated.

# Unit Assessment

8. Data is to act upon one another.

9. Inquiry is the examination into facts or assumptions.

10. Interaction is the recorded observations from an experiment.

## SIGHT RECOGNITION

Turn to pages 3 and 4 in your test. Look at the pictures in the boxes. Circle the word for each picture.

## DECODING/ENCODING

Turn to page 5 in your test.  Look at the scrambled letters on the left.  Rearrange or unscramble the letters to form each of the unit words.

## READING COMPREHENSION

Turn to page 6 in your test. Write the word or words that best complete each sentence in the space below.  Words may be used only once.

## BASIC WRITING

Turn to page 7 in your test. Look at the pictures in the boxes. Write the word for each picture.

## CREATIVE WRITING

Turn to page 8 in your test. Write a sentence of your own, using each word.

*Teacher: To get a percentage for this student's assessment, divide the total number of questions correct by the total number of questions, then multiply this answer by 100 to determine the percentage of questions answered correctly.*
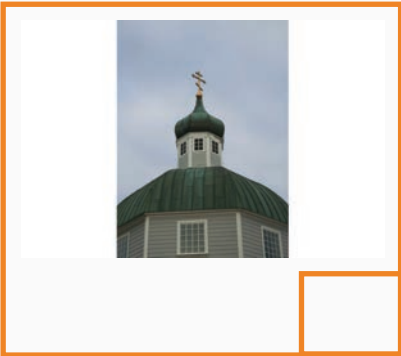
# SCIENCE PROGRAM

**Unit Assessment Student Pages**
**Grade 7   ●   Unit 2 (A–1)**
**Theme: Science as Inquiry Process**

Date:_____          Student's Name:_____


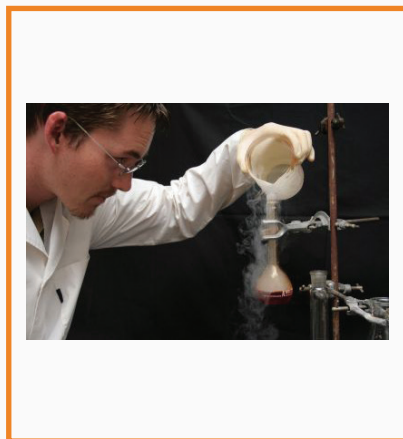Number Correct:_____          Percent Correct:_____

1.    T    F

2.    T    F

3.    T    F

4.    T    F

5.    T    F

6.    T    F

7.    T    F

8.    T    F

9.    T    F

10.    T    F

**analyze**
**conduct**
**data**
**environment**
**history**
**inquiry**
**interaction**
**investigate**
**process**
**record**



**analyze**
**conduct**
**data**
**environment**
**history**
**inquiry**
**interaction**
**investigate**
**process**
**record**



**analyze**
**conduct**
**data**
**environment**
**history**
**inquiry**
**interaction**
**investigate**
**process**
**record**



**analyze**
**conduct**
**data**
**environment**
**history**
**inquiry**
**interaction**
**investigate**
**process**
**record**



**analyze**
**conduct**
**data**
**environment**
**history**
**inquiry**
**interaction**
**investigate**
**process**
**record**



**analyze**
**conduct**
**data**
**environment**
**history**
**inquiry**
**interaction**
**investigate**
**process**
**record**

**3**

**analyze**
**conduct**
**data**
**environment**
**history**
**inquiry**
**interaction**
**investigate**
**process**
**record**



**analyze**
**conduct**
**data**
**environment**
**history**
**inquiry**
**interaction**
**investigate**
**process**
**record**



**analyze**
**conduct**
**data**
**environment**
**history**
**inquiry**
**interaction**
**investigate**
**process**
**record**



**analyze**
**conduct**
**data**
**environment**
**history**
**inquiry**
**interaction**
**investigate**
**process**
**record**

| | |
|---|---|
| p s c s e o r | _ _ _ c e _ _ |
| u i y n i r q | _ n _ _ _ _ y |
| i c n t o t e r n i a | _ _ t _ _ _ _ _ _ o n |
| t n v n i n e o r m e | _ _ _ i r _ _ _ _ n _ |
| s t t n g a e i e i v | i _ _ _ _ t _ g _ _ _ |
| o e c r d r | r _ c _ _ _ |
| a e l n z y a | a _ a _ _ _ _ |
| d a a t | _ _ t _ |
| c c o u n t d | c _ _ d _ _ _ |
| s y t o h r i | _ i _ _ o _ _ |

| history | data | process | analyze | environment |
|---------|------|---------|---------|-------------|
| inquiry | conduct | investigate | record | interaction |

1. Sir Isaac Newton is a scientist recorded in _____ as the founder of the three laws of motion.

2. The students had to _____ their experiment using the scientific method.

3. The scientific method is a _____ that scientists use to investigate and find answers to questions.

4. The science experiment required students to _____ data and to make graphs.

5. The biology students are scheduled to _____ the bacteria under a powerful microscope.

6. The students wanted to make an _____ about the new lab schedule.

7. The students went on a field trip to explore the _____ of the nearby wetlands.

8. The students were excited to learn that the interaction of magnesium and other _____ created a magnificent display of fireworks.

9. Scientists _____ organisms by looking at their cells under a micro scope.

10. The chemistry students spent hours reviewing the _____ from the experiment.

**ANALYZE**

_____

**CONDUCT**

_____

**DATA**

_____

**ENVIRONMENT**

_____

**HISTORY**

_____

**INQUIRY**

_____

**INTERACTION**

_____

**INVESTIGATE**

_____

**PROCESS**

_____

**RECORD**

_____