An easy way to learn simple arithmetic is to set out pebbles in a row. By adding more pebbles and counting the total, or by taking some away and counting the ones that remain, one can see the results of addition and subtraction. By using rows of pebbles, one can also learn multiplication. Pebbles arranged in three rows of four can be counted one at a time to see that 3 times 4 equals 12. By separating the pebbles into equal-sized groups, one can also learn division. For example, dividing the pebbles into two equal groups and counting the pebbles in one of them shows that 12 divided by 2 equals six. The Romans long ago thought of this method of doing math. In fact, our word *calculate* comes from the Latin word *calculus*, which means—a pebble!

Tens of thousands of years ago, a giant elephant lived in Europe and North America. It was called a mammoth. It was bigger than today's elephants; the largest ones were almost fourteen feet from the ground to the shoulder. It had huge tusks that curved downward and a thick, hairy coat. Mammoths died out long ago, but the bodies of some of them were frozen solid in the northern regions of Canada and Russia. They are sometimes found when the ice around them melts. Because of this creature's great size, its name became the adjective *mammoth*, meaning "very large; huge."
**Word List**

**Study the definitions of the words. Then do the exercises that follow.**

<table>
<thead>
<tr>
<th>Word</th>
<th>Definition</th>
</tr>
</thead>
</table>
| approach      | v. To go closer to.  
The vet **approached** the wounded deer carefully.  
n. 1. A coming closer.  
My grandparents dread the **approach** of winter.  
2. A road or way that leads to a place.  
The **approach** to the beach was blocked by a fallen tree. |
| burrow        | v. 1. To dig a hole or tunnel into or under something.  
Turtles **burrow** into soft sand to lay their eggs.  
2. To dig deeply into; to search.  
The clerk **burrowed** through the pile of papers on his desk.  
n. A hole or tunnel dug by an animal as a home or for protection.  
A mole spends most of its time in its **burrow**. |
| cease         | v. To stop; to come or bring to an end.  
After several hours of thunder and lightning, the storm finally **ceased**. |
| destructive   | adj. Causing harm or damage.  
Cutworms are very **destructive** garden insects.  
**destruction** n. Harm or damage.  
When Hurricane Katrina hit the Louisiana coast, it caused great **destruction**. |
| drowsy        | adj. Tired or sleepy.  
Lying in the sun always makes my cat, Inky, **drowsy**. |
| famished      | adj. Very hungry.  
Sometimes I work through my lunch hour, so by suppertime I am **famished**! |
| forecast      | v. To figure out and say what will happen before it takes place.  
Our fishing guide **forecast** a good catch.  
n. A telling of what will happen.  
As soon as Carlos gets up, he turns on the weather **forecast**. |
| hibernate     | v. To spend the winter in a resting state.  
Groundhogs **hibernate** because they can’t find enough food in the winter. |
**migrate**  
*mī'grät*  
v. To move from one country or region to another.  
Hundreds of thousands of people have *migrated* to the United States in search of freedom.  

**migration**  
*n.* The act of migrating.  
My friend Sandhya is studying Indian *migration* to the United States.  

**migratory**  
*(mī'gré-tör)'adj.* Moving from one place or country to another, usually regularly.  
Canada geese are *migratory* birds.

---

**nestle**  
*ne'səl*  
v. 1. To settle down comfortably, as if in a nest.  
"The children were *nestled* all snug in their beds" is a famous line from 'Twas the Night before Christmas.  
2. To lie in a sheltered, partly hidden place.  
The little Swiss town *nestled* at the foot of the Alps.

---

**observe**  
*əb zərv'  
v. 1. To see; to notice.  
I looked up at the sky and *observed* a hawk circling slowly, far above us.  
2. To comment; to remark.  
Sleepily, I *observed* that it was time we left.  
3. To mark an event or day.  
We *observed* Martin Luther King Day by closing the store.  
4. To obey.  
I try to *observe* the speed limit when I drive.

---

**prepare**  
*pri par'  
v. To make or get ready.  
The scouts *prepared* for their camping trip by getting lots of freeze-dried food.  

**preparation**  
*(presh'ər-ən-ən)*  
*n.* Something done to get ready.  
Antonio and Ruth did most of the *preparation* for the cookout the night before.

---

**reduce**  
*ri dōos'  
v. To make or become smaller or less.  
This winter, Vermont *reduced* the amount of salt it put on its roads.  

**reduction**  
*(réd'ək-shən)*  
*n.* The act of reducing or the amount by which something is reduced.  
The store sold out of swimsuits after its huge price *reduction*.

---

**severe**  
*sə vir'  
adj. 1. Very strict or harsh.  
That's a very *severe* punishment for turning a paper in late.  
2. Hard to bear or deal with.  
A *severe* frost caused a lot of damage to central Florida's orange crop.
**venture**

v. To dare to do, to go, or to say.

Maria **ventured** onto the dance floor even though she didn’t know how to dance.

n. Something that involves the risk of a loss.

Grandpa’s most successful **venture** was a carpet cleaning service.

---

3A Finding Meanings

Choose two phrases to form a sentence that correctly uses a word from Word List 3. Write each sentence in the space provided.

1. (a) does a lot of damage.  
   (b) A migratory animal is one that  
   (c) can be easily tamed.  
   (d) A destructive animal is one that

2. (a) a disappearance.  
   (b) A venture is  
   (c) An approach is  
   (d) a coming closer.

3. (a) A famished creature  
   (b) A migratory creature  
   (c) moves with the changing seasons.  
   (d) goes to sleep for the winter.

4. (a) To burrow is to  
   (b) dig a hole or tunnel.  
   (c) refuse to obey.  
   (d) To nestle is to

5. (a) to take no part in it.  
   (b) To forecast an event is  
   (c) to say it will happen.  
   (d) To observe an event is

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**Word List 3**

- approach
- burrow
- cease
- destructive
- drowsy
- famished
- forecast
- hibernate
- migrate
- nestle
- observe
- prepare
- reduce
- severe
- venture
6. (a) To reduce is to (c) To nestle is to
(b) settle down comfortably. (d) fall into a deep sleep.

7. (a) Preparation is (c) Hibernation is
(b) what you do to get ready. (d) what is asked for.

8. (a) something that involves a risk. (c) A reduction is
(b) the addition of something. (d) A venture is

9. (a) very thirsty. (c) To be famished is to be
(b) very hungry. (d) To be drowsy is to be

10. (a) To observe something is to (c) To cease something is to
(b) pay no attention to it. (d) notice it.
Improve each of the following sentences by crossing out the bold phrase and replacing it with a word (or a form of the word) from Word List 3.

1. Hana was starting to feel very sleepy when a noise made her jump.

2. The rain did not come to an end until early the next morning.

3. Some animals go into a long, deep sleep because there is so little for them to eat during the winter months.

4. The cottage lay partly hidden in a hollow near a grove of poplar trees.

5. All the roads that lead to the airport are closed because of the snowstorm.

6. The long journey of Canada geese from northern Canada to South America occurs each fall.

7. Even though Granny has very bad arthritis, she takes a walk every day.

8. The cutting down in size of this week's newspaper to just four pages was due to the paper shortage.

9. Ron dug deeply through the papers on his desk, trying to find the letter from his father.

10. As Maria Tipo played the piano, I closely watched the way she used the pedal.
Circle the letter or letters of each correct answer. A question may have more than one correct answer.

1. Which of the following can people reduce?
   (a) their weight
   (b) their shoe size
   (c) their age
   (d) their spending

2. Which of the following would be a severe punishment?
   (a) a slap on the wrist
   (b) going to jail
   (c) no television for a day
   (d) being told to be quiet

3. Which of the following can a person forecast?
   (a) the final score of a game
   (b) the weather
   (c) a past event
   (d) costs of doing business

4. Which of the following can cause destruction?
   (a) forest fires
   (b) floods
   (c) bombs
   (d) hurricanes

5. Which of the following could cease?
   (a) fighting
   (b) noises
   (c) the weather
   (d) a storm

6. Which of the following can migrate?
   (a) animals
   (b) birds
   (c) plants
   (d) humans

7. Which of the following could be observed?
   (a) a law
   (b) a birthday
   (c) a rule
   (d) a full moon

8. Which of the following can be prepared?
   (a) a lunch for four
   (b) a garden for planting
   (c) a book report
   (d) a full moon
Many English words come from Latin. We say they have Latin roots. Our word *patriot*, for example, is formed from the Latin word *pater*, meaning “father.”

In each space, write the Latin word that the English word comes from. Then write its meaning. Choose from the ten Latin words shown.

<table>
<thead>
<tr>
<th>Latin Word</th>
<th>English Word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>propius</em> (near)</td>
<td>approach</td>
<td>to draw near; to get closer</td>
</tr>
<tr>
<td><em>calcarius</em> (pebble)</td>
<td>hibernate</td>
<td>to spend the winter sleeping</td>
</tr>
<tr>
<td><em>fames</em> (hunger)</td>
<td>famished</td>
<td>very hungry; starving</td>
</tr>
<tr>
<td><em>cessare</em> (stop)</td>
<td>complete</td>
<td>to bring to an end; to finish</td>
</tr>
<tr>
<td><em>plere</em> (complete)</td>
<td>cease</td>
<td>to come to an end; to stop</td>
</tr>
<tr>
<td><em>severus</em> (serious; strict)</td>
<td>observe</td>
<td>to look at closely</td>
</tr>
<tr>
<td><em>servare</em> (watch)</td>
<td>severe</td>
<td>strict or harsh</td>
</tr>
<tr>
<td><em>bene</em> (well)</td>
<td>project</td>
<td>to throw onto a screen</td>
</tr>
<tr>
<td><em>hibernus</em> (winter)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>jacere</em> (throw)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*approach, burrow, cease, destructive, drowsy, famished, forecast, hibernate, migrate, nestle, observe, prepare, reduce, severe, venture*
9. to be useful to; to help  
   Meaning  

10. to figure out using math  
   calculate  
   Meaning  

**Passage**

Read the passage. Then answer the questions that follow it.

**A Long Winter Nap**

Summer is a good time of year for most animals. It's easy for them to keep warm, and food is plentiful. Winter is harder for them. Lakes and ponds are frozen, and snow may cover the ground. All this makes food much harder to find. Many birds and some animals escape northern winters completely. They migrate south in the fall and return in the spring.

The groundhog, or woodchuck, deals with winter differently. It hibernates. As soon as it feels the weather turning cold, it starts to dig. It digs a burrow at least five feet underground. There it makes a comfortable nest with leaves and grass. The groundhog spends the cold winter months nestled in its underground bed. It does not usually wake up until spring. It is far enough below ground that there is no danger of its freezing to death. It stays safe even during the most severe winter.

The groundhog does not eat at all during the winter. Instead, it eats as much and as often as it can during the summer. People with gardens know how destructive a groundhog can be to their plants. As winter approaches, the groundhog becomes so fat it can hardly move. It prepares its nest and closes off the openings of the tunnels that lead down to it. When it starts to feel drowsy, it makes itself comfortable and falls into a long, deep sleep. This sleep can last up to eight months.

If you observed the groundhog in this state, you might think it had died. Its breathing almost ceases; its heart slows to about four beats a minute. A thermometer would show that its body temperature has fallen to just above freezing. When the groundhog wakes up in the spring, it has been without food for many months. Its weight has been reduced to only half of what it
was in the fall. Almost all its body fat has been used up to keep it alive during its long sleep. By February or March, the famished animal is ready to leave its hole and go looking for its first meal.

Years ago, people who lived in the country eagerly awaited the sight of the first groundhog putting its head above ground; it was a sign that winter was over. This gave rise to a number of stories. One of them was told by German farmers who had settled in Punxsutawney, Pennsylvania. The story was about a groundhog they called Punxsutawney Phil. This remarkable animal could forecast the weather.

According to the story, Phil ventured from his nest every February 2. He poked his head above ground and looked around. If he saw his shadow, it meant that there would be another month and a half of winter. In that case, he went back to sleep for another six weeks. If the weather was cloudy, and he didn’t see his shadow, it meant spring would be early. This story spread around the country. Eventually, February 2 became known as Groundhog Day.

Answer each of the following questions in the form of a sentence. If a question does not contain a vocabulary word from the lesson’s word list, use one in your answer. Use each word only once.

1. Why do you almost never see groundhogs in winter?

2. What preparations does a groundhog make for winter?

3. How does the groundhog’s appearance change as winter approaches?

4. How does a groundhog feel just before it begins its long sleep?
5. How do groundhogs keep from freezing during the winter months?

6. What might the temperature be during a severe winter?

7. How do we know that a groundhog needs only a little oxygen during its winter sleep?

8. What does the groundhog do when it gets into its burrow?

9. How does the groundhog's size change over the winter?

10. What is the meaning of observe as it is used in the passage?

11. Why is the groundhog famished when it wakes up in early spring?

12. What was unusual about Punxsutawney Phil?

13. What is supposed to happen on Groundhog Day?
14. What do many northern birds do to escape the winter?

15. Why do gardeners think groundhogs are **destructive**?

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**FUN & FASCINATING FACTS**

- French, Spanish, and Italian are Latin languages. This means that many of their words come directly from the Latin that people throughout the Roman Empire spoke two thousand years ago. For example, you learned the Latin word *hibernum*, meaning winter. The French word for *winter*, *hiver*, also comes from Latin.

- When modern science began several hundred years ago, there was a need for scientific terms, and these were usually formed from Latin, the language of scholars. The word *hibernate* was formed in this way. It means “to go into a sleeplike state during the winter,” and comes from the Latin word for *winter.*