DAY 1: 6th Grade

ELA

MATH

SCIENCE

SOCIAL STUDIES

ELA 6th 1

The Suffixes *-sive* and *-tive*

The suffixes *-sive* and *-tive* mean "likely to or apt to."

Examples: *extensive* means "likely to extend"

competitive means "apt to compete"

Words ending in *-sive* or *-tive* are usually adjectives (describing words).

Part I: Form an adjective ending in *-sive* to describe:

Example: likely to persuade* persuasive

1. too much; excess _____
2. large; lots of mass _____
3. apt to defend* _____
4. likely to abuse _____
5. apt to be intense _____
6. apt to blow up; explode* _____
7. apt to cost a lot of money _____
8. apt to decide* _____

* With words that end in *d* or *de,* drop those letters when adding *-sive.*

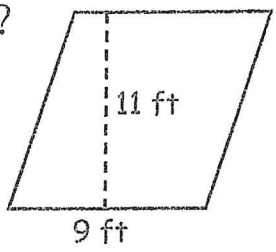
Part II: Form an adjective ending in *-tive* to describe:

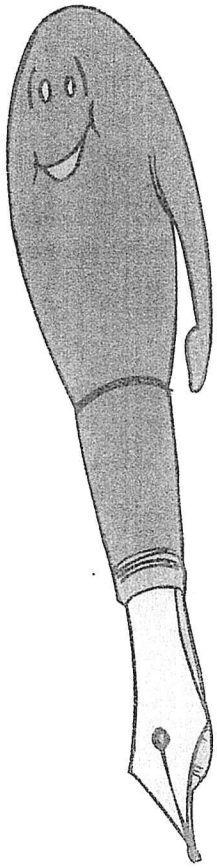
Example: apt to keep a secret secretive

1. likely to detect _____
2. apt to talk _____
3. apt to prevent _____
4. apt to act _____
5. apt to inform _____
6. apt to be related _____
7. likely to capture _____
8. likely to instruct _____

Lesson #1

1. Give the estimated difference between 3,475 and 7,652.
2. Draw intersecting lines.
3. $32{,}896 + 44{,}973 = ?$
4. If $9x = 18$, what is the value of x?
5. Michael bought four packs of pens. Each pack contains 12 pens. Mark bought twice as many pens as Michael. How many pens did Mark buy?
6. $35 \times 27 = ?$
7. Round 4,876,213 to the nearest ten thousand.
8. How many sides does a pentagon have?
9. Find the GCF of 8 and 16.
10. $3{,}429 \div 9 = ?$
11. Find the area of the parallelogram.





12. A rectangular shaped waiting room has an area of 120 square feet and a perimeter of 44 feet. What are its dimensions?
13. $6.2 + 4.75 = ?$
14. Put $\frac{14}{16}$ in simplest form.
15. Water freezes at _____ degrees Celsius.
16. $\frac{3}{5} + \frac{2}{3} = ?$
17. $8 - 6\frac{4}{5} = ?$
18. Figures with the same size and shape are _____.
19. What is the probability of rolling an odd number on one roll of a die?
20. $\frac{5}{8} \bigcirc \frac{6}{7}$

1.	2.	3.	4.
5.	6.	7.	8.
9.	10.	11.	12.
13.	14.	15.	16.
17.	18.	19.	20.

Name: Science

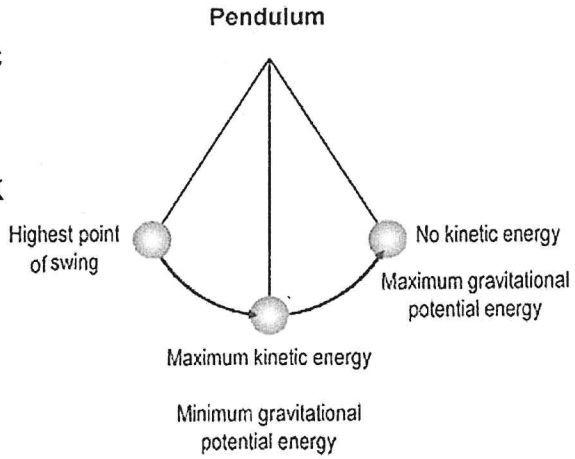
Lesson 6 6th - NTI Day 1

Kinetic and Potential Energy

Energy, a term used frequently in science, can be understood as the capability to accomplish tasks or perform work. It exhibits itself in numerous forms including chemical, nuclear, and electromagnetic energy, among others. One interesting thing about energy is its ability to metamorphose from one form to another. This complex transformation process is a critical part of how things function in the world around us.

Consider the example of **kinetic energy** - this is the kind of energy that an object possesses when it is in motion. Imagine a ball that is rolling down a slope - it is bustling with kinetic energy. The velocity and mass of an object are directly proportional to the amount of kinetic energy it possesses. This is why a bowling ball rolling at the same speed as a tennis ball will possess more kinetic energy - it simply has more mass. On the other hand, if the tennis ball is moving at a significantly higher speed than the bowling ball, it may hold equivalent or even more kinetic energy due to its increased velocity.

However, not all forms of energy are as dynamic as kinetic energy. Let's take a look at **potential energy** - the energy held by an object due to its position. For instance, a ball situated at the peak of a hill has energy, even though it is stationary. This energy, stored and ready to be utilized, is termed potential energy.



How much potential energy an object has is determined by its placement or position. **Gravitational potential energy**, in particular, is a form of potential energy that arises due to the height of the object from the ground level. Thus, every object that is elevated above the ground possesses gravitational potential energy. You, for instance, would have more potential energy if you were standing on a high diving board compared to a lower one. As soon as you jump, your potential energy swiftly transitions into kinetic energy since you are now in motion. A swinging pendulum provides a clear visualization of how gravitational potential energy continuously alternates with kinetic energy.

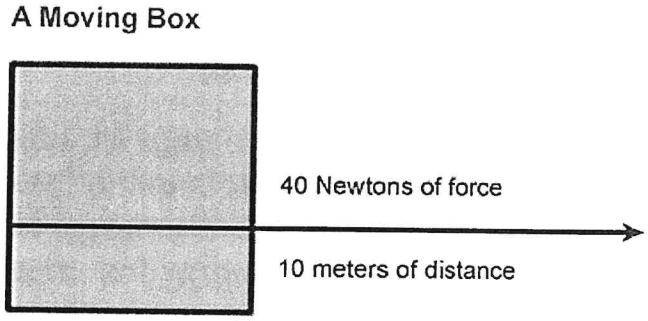
In scientific terms, work refers to the act of applying force to move an object over a certain distance. If you lift a stack of books off a table, you're doing work since you're moving them over a distance. But, if you're simply holding the books without moving, even though you're applying force, you're not technically doing work since the force is not acting over a distance.

The amount of work done can be calculated using the formula:

Work = Force (push or pull) X Distance

Force is quantified in a metric unit named **Newtons** (N). A single Newton is equivalent to the force necessary to alter the speed of a one-kilogram object by one meter per second each second. Using this formula, let's calculate the amount of work required to shift a box 10 meters. If the force needed is 40 N, and the distance is 10 meters, the work equals 400 joules. Thus, the energy required to move the box is 400 **joules**. A joule, in basic terms, is the work done by a force of 1 Newton over a distance of 1 meter.

Suppose you decide to place the box in a wagon - how would this impact the values in the formula? Would the work required to move the box over the same distance be different now? Indeed, it would. The wheels on the wagon would help to decrease the **friction**, thereby reducing the force necessary to move the box. As a result, less work would be needed to pull the box in the wagon. It's essential to note that friction is a force that resists the relative motion of one surface past another. Hence, a baseball rolling over a rough surface, like sand, would face more friction compared to when it rolls on a smooth surface, like a wooden floor.



END OF TEXT

Name:

Lesson 6

6th - Day 1

Kinetic and Potential Energy

1. What is energy defined as in the text?
   - **A.** The capability to change shape
   - **B.** The ability to play sports
   - **C.** The capability to accomplish tasks or perform work
   - **D.** The ability to make things light up

2. Which of the following is **not** a form of energy mentioned in the text?
   - **A.** Chemical
   - **B.** Nuclear
   - **C.** Electromagnetic
   - **D.** Thermal

3. What kind of energy does a moving object possess?
   - **A.** Gravitational potential energy
   - **B.** Chemical energy
   - **C.** Kinetic energy
   - **D.** Nuclear energy

4. What kind of energy does a stationary object at a high position possess?
   - **A.** Gravitational potential energy
   - **B.** Kinetic energy
   - **C.** Electromagnetic energy
   - **D.** Nuclear energy

5. What two factors are directly proportional to an object's kinetic energy?
   - **A.** Color and shape
   - **B.** Mass and volume
   - **C.** Speed and mass
   - **D.** Weight and height

Name:

Lesson 6

Kinetic and Potential Energy

6. What is the scientific definition of work?
   - **A.** Something you do for money
   - **B.** A piece of art
   - **C.** The act of applying force to move an object over a certain distance
   - **D.** An assignment given by a teacher

7. What is the unit of force?
   - **A.** Joules
   - **B.** Newtons
   - **C.** Kilograms
   - **D.** Meters

8. What is the formula to calculate work done?
   - **A.** Force / Distance
   - **B.** Force X Distance
   - **C.** Force + Distance
   - **D.** Force - Distance

9. How would placing a box in a wagon change the work required to move it?
   - **A.** It would increase the work needed
   - **B.** It would not change the work needed
   - **C.** It would decrease the work needed
   - **D.** It would stop the need for any work

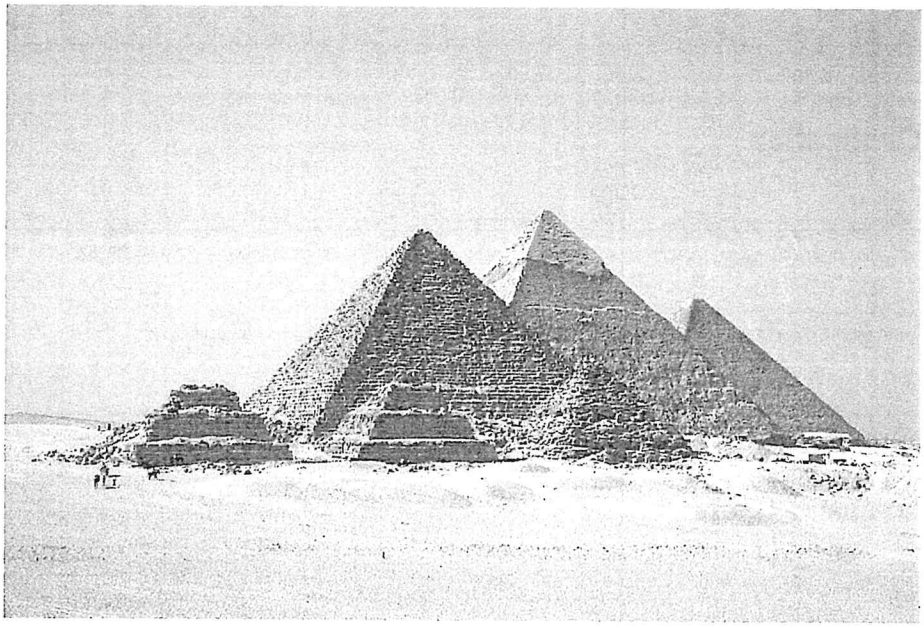
10. What is friction?
   - **A.** A type of energy
   - **B.** A force that promotes the motion of one surface past another
   - **C.** A force that resists the relative motion of one surface past another
   - **D.** A type of force needed to move objects

Day 1

River Valley Civilizations

Complete Unit Guide Packet

Overview



After humans first began farming and settling down during the Neolithic Revolution, the first true civilizations developed. Many of these societies grew in river valleys that provided water for agriculture, drinking, and transportation. The four largest, most developed of these early river valley civilizations were Mesopotamia, Egypt, the Indus River Valley, and China.

The oldest civilizations we know about began in Mesopotamia between the Tigris and Euphrates Rivers. This region is also known as the Fertile Crescent, after the shape between the two rivers. These civilizations included the Sumerians, Assyrians, Akkadians, and Babylonians. Egyptian civilization developed along the Nile River in North Africa and is most-known for the massive pyramids it built for its ruling pharaohs. The Indus Valley Civilization grew in the Indian subcontinent. In Ancient China civilization grew along the Yellow River.

During the Bronze Age, these civilizations developed written languages such as cuneiform and hieroglyphics as well as complex institutions of government and religion. Polytheistic religions arose in Mesopotamia, Egypt, along with Hinduism in the Indus Valley.

Social, political, and economic patterns, including slavery, shaped each civilization's culture, religion, and economy. Technological advances of this period include the wheel, sail, and irrigation systems. The first written code of laws, Hammurabi's Code in Mesopotamia, impacted ethics and government's role in its citizens' lives. Cultural diffusion spread these ideas and knowledge across an increasingly global economy.

Essential Questions

a) Why did early civilizations form in river valleys?

b) How do geography and climate impact society?

c) What is a civilization?

d) How did religion impact early governmental systems?

e) Why was the discovery of the Rosetta Stone so important in understanding Egyptian culture?

f) What was Hammurabi's Code? What philosophy was it based on? Why was this such an important milestone in history?

g) What is cultural diffusion?

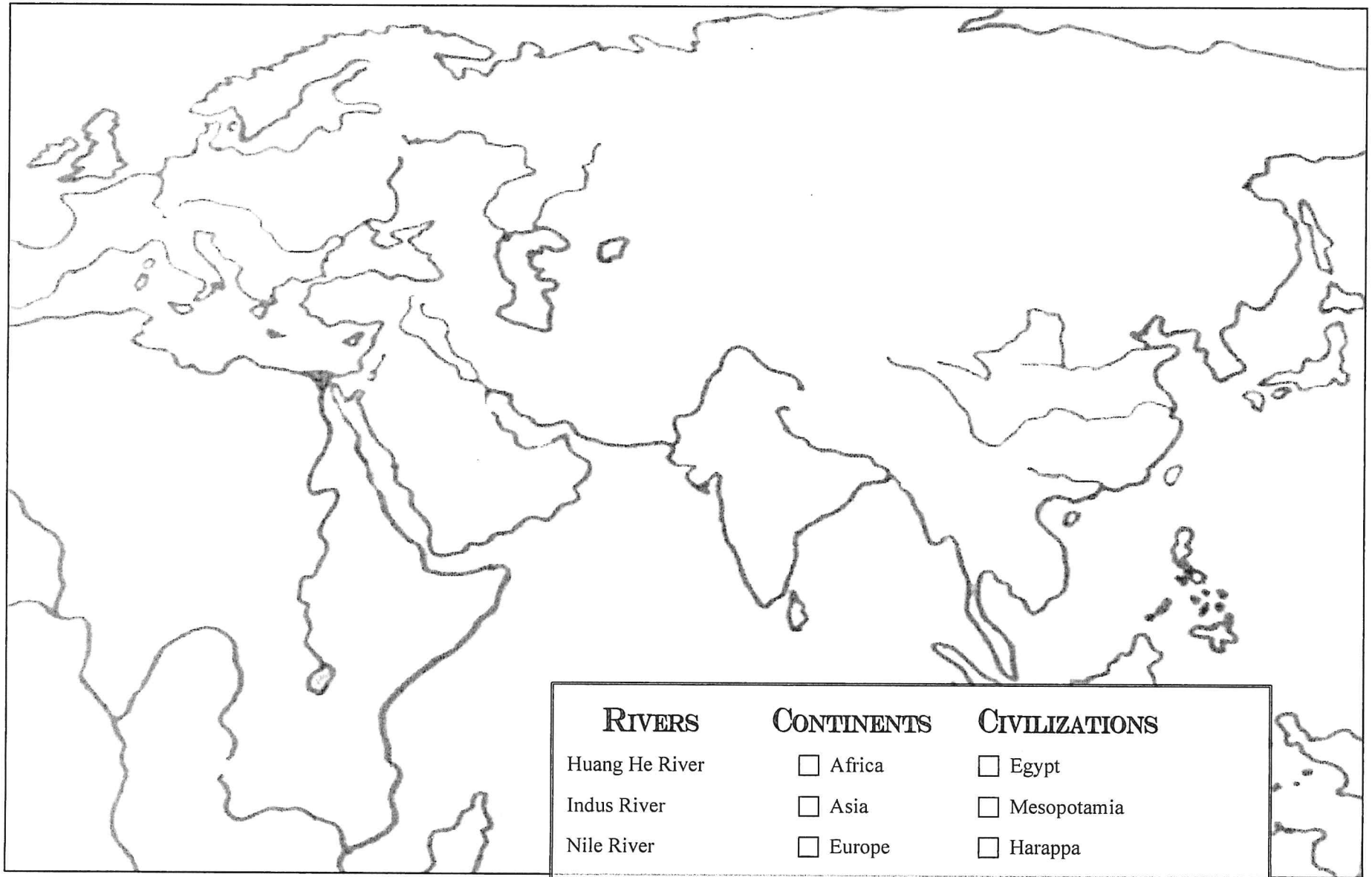
VOCABULARY

Directions: Write the definition for each word in the middle column and draw a picture to represent each in the 3rd column.

City-State		
Civilization		
Cuneiform		
Dynastic Cycle		
Hieroglyphics		
Pharaoh		
Polytheism		
Theocracy		
Ziggurat		

River Valley Civilization Geography

Directions: Color and label the **rivers**, **continents** and **civilizations** on the map and on the key below. Trace the rivers in blue and label alongside them and label each river valley civilization on the map. Be sure to also complete the boxes next to the continents and civilizations in the map key.



Rivers	Continents	Civilizations
Huang He River	☐ Africa	☐ Egypt
Indus River	☐ Asia	☐ Mesopotamia
Nile River	☐ Europe	☐ Harappa
Tigris & Euphrates		☐ Shang Dynasty