Work & Machines Unit Review ***Name _____***

Lesson 1 Review – Read Lesson 1 to help you answer these questions.

1. Explain how the scientific definitions of work and power are different than those we might use in our everyday lives. Give two examples for each - real-world and scientific.

2. What does it mean when it says work is directly related to force and distance?

3. Use the formula Work = Force × Distance to calculate the amount of work done in each example.

A. A weightlifter uses 50 N of force to lift a barbell set 1 meter off the ground. How much work is done on the barbell?

B. A person uses 25 N of force to lift a box .5 m off the ground. How much work is done on the box?

4. Explain why holding an object is not the same as doing work.

5. Find examples of power in your home. List three items below and give the watts (or horsepower) used by each.

Lesson 2 Review – Read Lesson 2 to help you answer these questions.

1. Describe three examples of friction you have experienced.

2. Identify each type of friction using S for sliding, R for rolling, and F for fluid. Some items may have more than one type of friction that applies.

____ *A person pushes a box off the table.*

____ *The wheels on a skateboard roll along the ground.*

____ *A swimmer moves through the water using different strokes.*

____ *Ball bearings in a "lazy susan" allow a person to spin it around.*

____ *Keep the right amount oil in your car's engine to keep it working properly.*

____ *Ice skates help hockey players move across the ice.*

3. Explain why most machines do not have a 100% efficiency rating.

4. What are three ways we can increase a machine's efficiency by reducing friction?

Lesson 3 Review – Read Lesson 3 to help you answer these questions.

1. Find two examples of each type of simple machine in your home, yard, or garage.

Levers	
Pulleys	
Inclined Planes	
Wedges	
Screws	
Wheel & Axle	

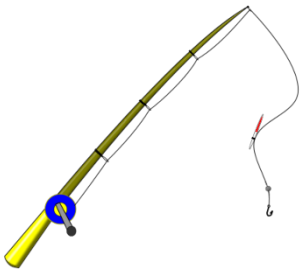
2. Identify ways to make a simple machine easier to use, i.e. require less force, by increasing its mechanical advantage. Explain with words and provide drawings for each.

Lever

Pulleys

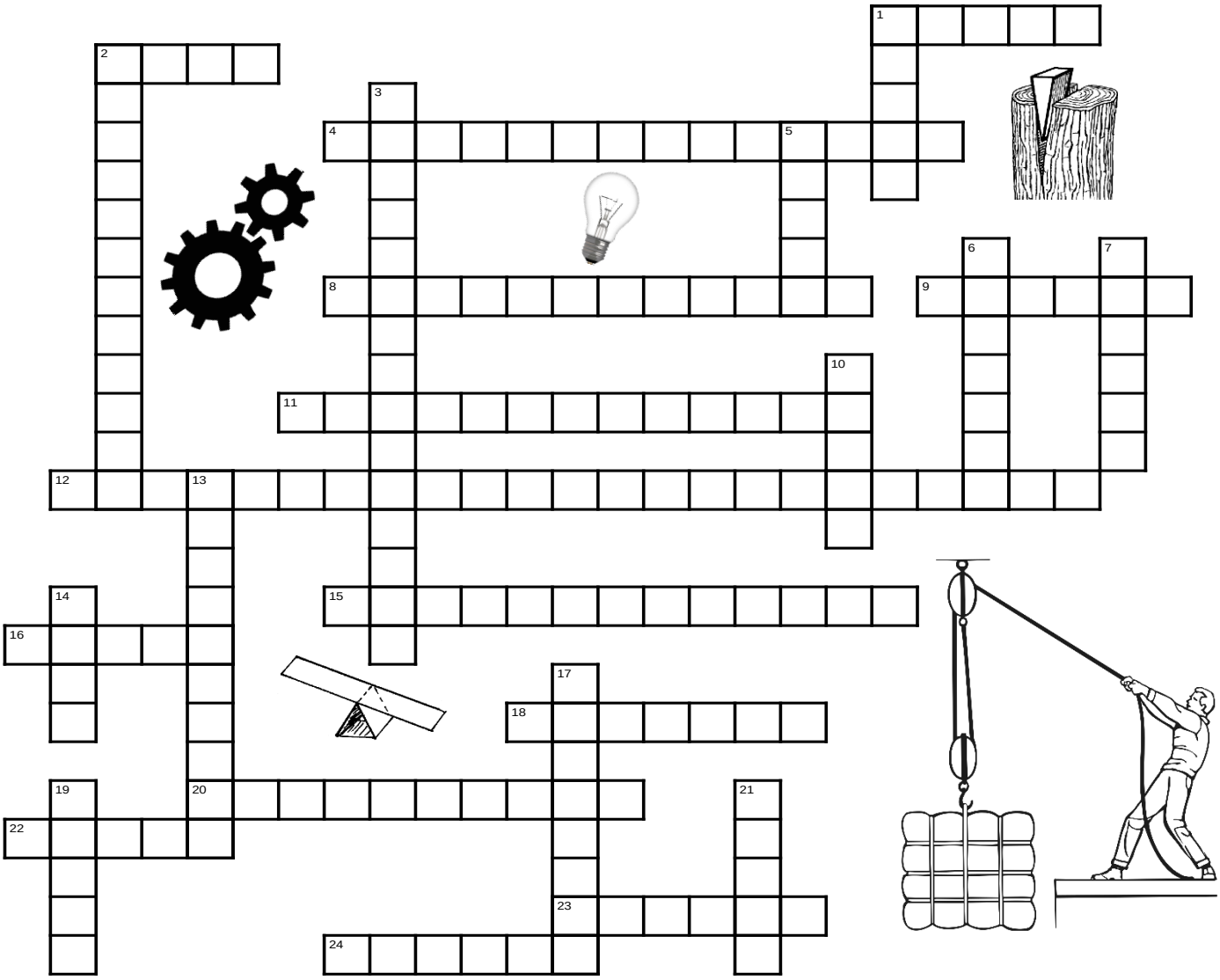
Inclined planes

3. Identify as many simple machines as you can in the two examples of compound machines below.



Vocabulary Review

Name _____



Across

1. A simple machine made up of an inclined place wrapped around a column
2. Unit for power
4. A pulley that moves with the load or resistance
8. The cartoonist who drew pictures of complex machines that do simple tasks.
9. A simple machine made up of a rope fitted around the rim of a fixed wheel
11. Six basic types of machines that can be combined to make more complex machines
12. Factor by which a machine multiplies the effort force
15. A simple machine made up of a slanted surface
16. A push or pull
18. A force that pulls objects toward each other
20. The percentage of the input work that is converted to output work
22. The rate at which work is done; measured in watts
23. Force created or exerted by a simple machine
24. A change in the position of an object as compared to objects around it

Down

1. A measure of the distance an object travels in a certain amount of time
2. A simple machine made up of two cylinders that turn on the same axis
3. A machine made of more than one simple machine
5. A simple machine made up of a stiff bar that moves freely around a fixed point
6. The fixed point around which a lever pivots
7. SI unit of force
10. A simple machine made up of two inclined planes placed back to back
13. A common unit of power, equal to about 746 watts
14. A result of a force moving an object a certain distance; force x distance
17. A force that occurs when one object rubs against another object
19. A unit of work equal to one Newton-meter
21. Force applied to a simple machine