
LEARNING OBJECTIVE: _____

DO NOW:

1. Write any words that come to your mind when you think of WORK:
2. Who do you think is the most powerful (physically) 6th grader? Why?

CLASS NOTES:

A FORCE is a push or a pull. Force is measured in NEWTONS.

Your weight can be measured as the amount of force you push onto the ground.

If you take the weight of an object, in pounds, and multiply it by 4.5, you get the object's weight in newtons (N):

Example: Textbook 2 pounds (lbs.)

x4.5

weighs 9 newtons (N)

When you know an object's weight in newtons, you can calculate how much work it takes to move the object, and how much power you use when you move it.

Work _____

Work is measured in JOULES (J)

Work (J) = _____ x _____

Power _____

Power is measured in WATTS

Power (watts) = _____ / _____

GUIDED PRACTICE:

1. A 6th grade student with a weight of 450 N (newtons) runs the 40 m (meters) dash. How much WORK did the student do?

Force (N) x Distance (m) = Work (J)

$$\underline{\hspace{2cm}} \text{ N} \quad \times \quad \underline{\hspace{2cm}} \text{ m} \quad = \quad \underline{\hspace{2cm}} \text{ J}$$

2. The student in question #1 ran the 40m dash in 6 seconds. How much POWER did the student use?

Work (J) / Time (s) = Power (watts)

$$\underline{\hspace{2cm}} \text{ J} \quad / \quad \underline{\hspace{2cm}} \text{ s} \quad = \quad \underline{\hspace{2cm}} \text{ watts}$$

GROUP WORK:

1. A 6th grade student with a weight of 450 N (newtons) walks 40m (meters). How much work did the student do?

2. The student in question #1 walked the 40m in 18 seconds. How much POWER did the student use?

3. A painter lifts a can of paint that weighs 50 N (newtons) and puts the can on a shelf 2 m (meters) high. How much WORK did the painter do?

4. The painter in question #3 lifted the can of paint in 4 seconds. How much POWER did the painter use?

5. A mother pushes a grocery cart that weighs 150 N (newtons) a distance of 325 m (meters) on her way to her car. How much WORK did she do?

6. If a race car does 50,000 J (Joules) of work during an 8 second race, what is the POWER of the car during the race?

REVIEW:

1. If person A moves a refrigerator that weighs 500 N (newtons) a distance of 20 m (meters) in 20 s (seconds), and person B moves the same refrigerator 20 m (meters) in 40 s (seconds), does one of them do more WORK? Prove it.

2. In question 1, does person A or person B use more POWER? Prove it.