

Name: _____

Period: _____

8th Grade Science
2013-2014 Final Exam Study Guide
Quarter 3

Standard 1

Benchmark A: Position is defined relative to some choice of standard reference point and a set of reference directions.

What is motion?

How do you know if an object is moving?

What is a reference point?

Give an example of an object moving relative to a reference point.

Give an example of an object not moving relative to a reference point.

Are reference points usually still or moving?

If you are riding on a roller coaster and going down a steep hill, are you moving if the reference point is the track?

If you are riding on a roller coaster and going down a steep hill, are you moving if the reference point is the seat you are sitting in?

List some words that can be used for reference directions.

Standard 1

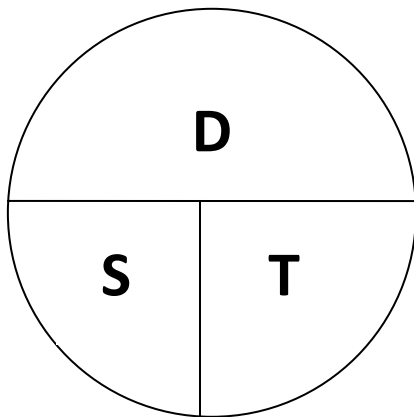
Benchmark B: Average speed is the total distance traveled divided by the total time elapsed. The speed of an object along the path traveled can vary.

Benchmark C: How to solve problems involving distance, time, and average speed.

What is the difference between average speed and instantaneous speed?

What is the formula for calculating average speed?

What is the definition of average speed?



Explain how to use this diagram to calculate the speed, distance, and time of an object.

What is the average speed of a car that drives 50 miles in 40 minutes and then 30 miles in 20 minutes?

What is the average speed of a horse that runs 10 miles in 30 minutes? Express your answer in mi/hr.

Standard 1

Benchmark D: To describe the velocity of an object one must specify both speed and direction.

Benchmark E: Changes in velocity can be changes in speed, direction, or both.

How is velocity different than speed?

Give three examples of speed and three examples of velocity.

List three ways that velocity can change?

What is acceleration?

What is negative acceleration?

By the science definition, is a car that is slowing down accelerating?

If you are riding on a merry-go-round at a constant speed, are you accelerating?

If you are driving in a straight line at a constant speed, are you accelerating?

Standard 1

Benchmark F: How to interpret graphs of position versus time and speed versus time for motion in a single direction.

What does the word linear mean?

What does the word nonlinear mean?

What does the slope of a distance vs time graph show you about the motion of an object?

What does a straight line on a distance vs time graph tell you?

What does a curved line on a distance vs time graph tell you?

What does a horizontal line on a distance vs time graph tell you?

Explain how to use a distance vs time graph to calculate the speed of an object.

Explain how to calculate how far an object travelled using a speed vs time graph.

Standard 2

Benchmark A: A force has both direction and magnitude.

What is a force?

All forces have _____ and _____.

Magnitude is the _____ of the force.

What is the unit used to measure force?

What is a vector quantity? Is force considered a vector quantity? Why?

Give 3 examples of a force.

A force is applied to an object and the object moves a certain distance. You then switch and apply that same force to the opposite side of the object. What do you think will happen?

Standard 2

Benchmark B: When an object is subject to two or more forces at once, the effect is the cumulative effect of all the forces.

What is net force?

How do you find the net force when two forces act in opposite directions?

How do you find the net force when two forces act in the same direction?

Draw a box diagram to show two forces acting on an object. Label the forces with a magnitude. Be sure to include the correct units.

If two forces act on the same object and those forces are equal and opposite, what is the net force on the object?

Standard 2

Benchmark C: When the forces on an object are balanced, the motion of the object does not change.

Benchmark E: When the forces on an object are unbalanced, the object will change its motion (that is, it will speed up, slow down, or change direction).

What does it mean when forces are balanced?

What does it mean when forces are unbalanced?

How do balanced forces affect an object's motion?

How do unbalanced forces affect an object's motion?

A cup is resting on a table. The table is pushing up on the cup with a force of 3N. What is the force of gravity acting on the cup?

A skateboard is rolling down a hill. If you apply a force to the skateboard in the direction the skateboard is moving, what happens to the skateboard's motion?

When forces are balanced, what is the net force equal to?

When can forces be added together?

Standard 2

Benchmark D: How to identify separately two or more forces acting on a single object, including gravity, elastic forces due to tension or compression in matter, and friction.

What is the difference between tension and compression?

Give an example of tension and an example of compression.

What is friction? In what direction does it act?

What factors affect the friction force between two surfaces?

If you try to push a heavy piano across a carpeted floor, what force prevents the piano from moving easily?

What is gravity?

What is the law of universal gravitation?

What does weight measure?

A static object is _____

Standard 2

Benchmark F: The greater the mass of an object, the more force is needed to achieve the same change in motion.

If you increase the force you exert on an object, what happens to the object's acceleration?

If you exert the same amount of force on two objects and one object is heavy and the other is light, which object will accelerate the most?

What is Newton's Second Law?

What is the formula for calculating the acceleration of an object?

Find the acceleration of an object that has a mass of 10 kg and a net force of 50N acting on it.

Why will a 5 kg bowling ball accelerate more easily than a 10 kg bowling ball?

How do you calculate the momentum of an object?

What is inertia?