UNITED ARAB EMIRATES
MINISTRY OF EDUCATION

الإمارات العربية المتحدة
وزارة التربية والتعليم

Khalifa City A School - Cycle 1

مدرسة مدينة خليفة أ / حلقة أولى

SCIENCE

CHAPTER 8-MOTION, FORCES AND DESIGN PROCESS

LESSON 1- CHANGING MOTION-PART 1

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WHAT IS MOTION?

❖ An object is in motion if its location is constantly changing.

POSITION

It is the location of the object

❖ When we describe an object's position, we compare it to surrounding objects. The objects used for comparing are called the frame of reference.

❖ For example: Cat is under the box.

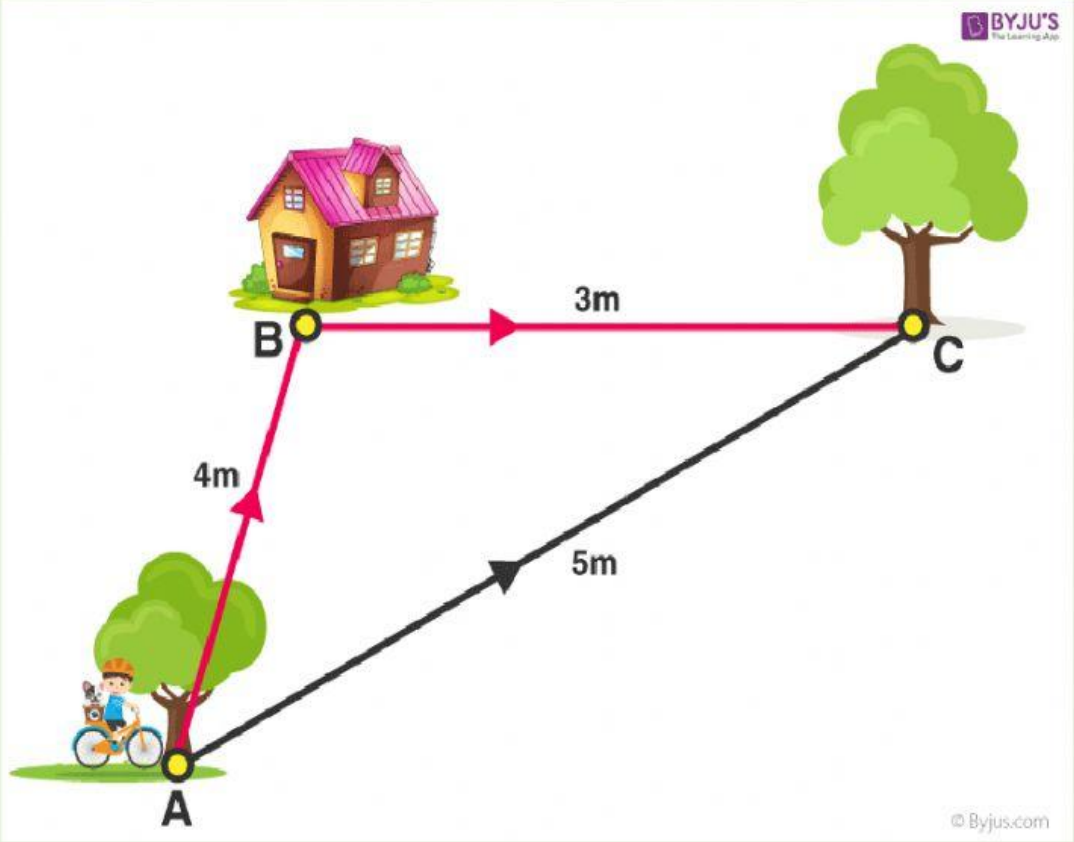
Cat is near the box.

WATCH VIDEO ABOUT MOTION AND POSITION

DISTANCE

Distance means how far apart two points or places are.

PRACTICE QUESTIONS:

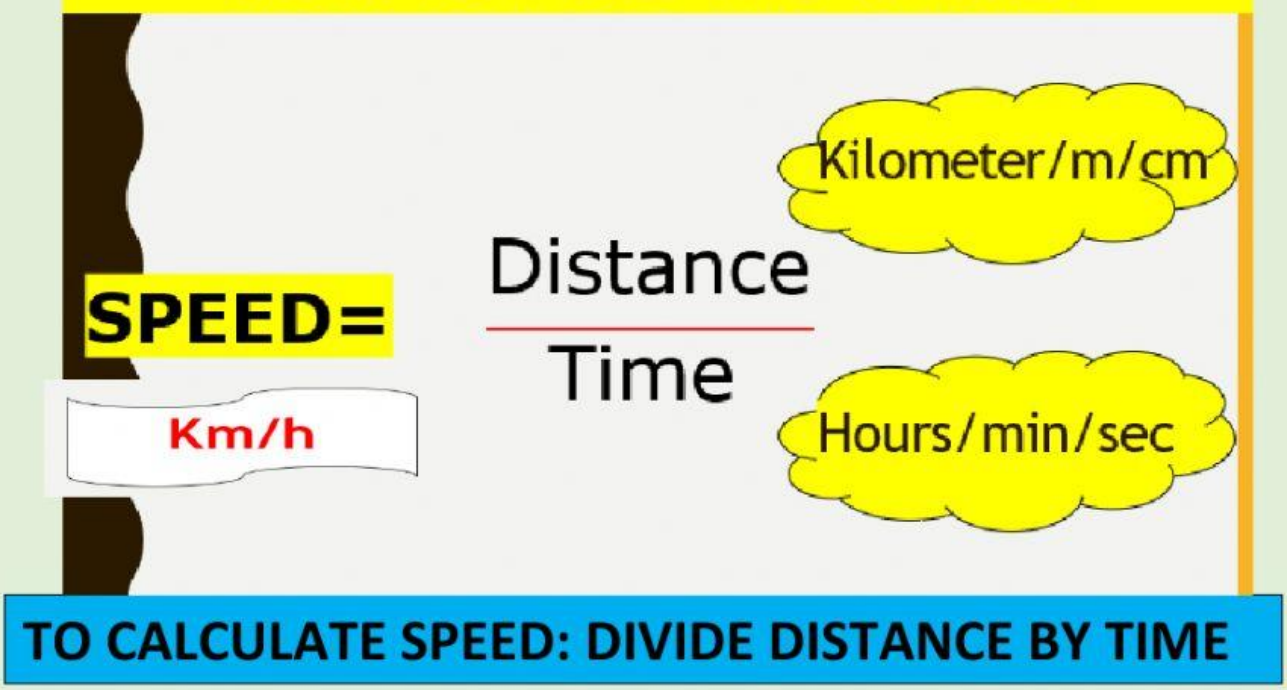


- Distance between **HOUSE AND TREE:**
- Distance between **BOY AND HOUSE:**
- Distance between **BOY AND TREE:**

SPEED

- All moving objects have speed.
- Speed is the distance an object moves in an amount of time.

HOW TO FIND THE SPEED?



TO CALCULATE SPEED: DIVIDE DISTANCE BY TIME

$$S = \frac{D}{T}$$

PRACTICE QUESTIONS:

1. Students collected the following data about the motion of vehicles designed by students.

Student	Distance Traveled (m)	Time (s)
Omar	69	10
Ziyad	77	10
Ahmad	74	10
Khaled	82	10

What is the speed of the fastest vehicle?

A 6.9 m/s C 8.2 m/s

B 69 m/s D 82 m/s

2. Mariam knows the distance and time a car prototype traveled. Which mathematical operation does she need to solve for speed?

A add

B subtract

C multiply

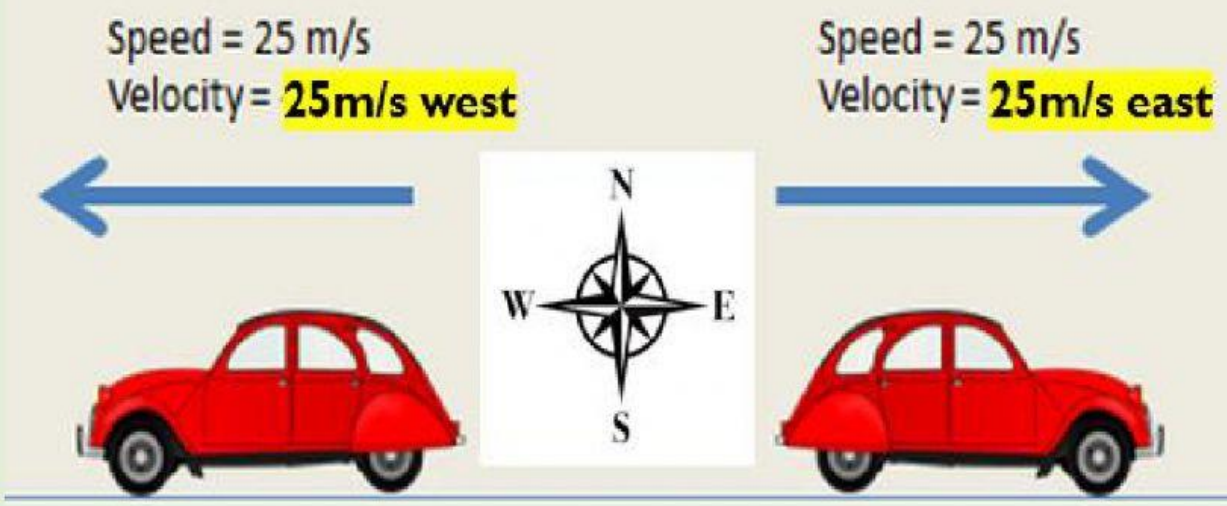
D divide

3. The distance an object travels in a certain time is its

4. Suppose that in 6 hours, you pedal your bike 12 km. Find your speed?

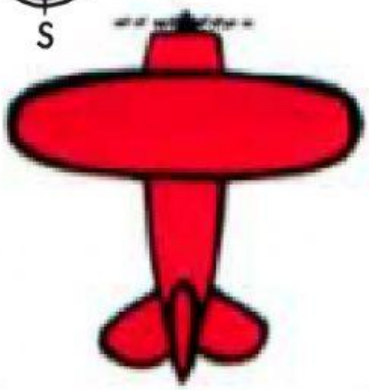
VELOCITY

The object's speed and direction of motion.



- SPEED OF THE TRAIN →300 KM/H
- DIRECTION → EAST
- VELOCITY→ 300 KM/H EAST

80 km/h



VELOCITY OF AIRPLANE

KM/H

FORCE

Force is a push or pull

- Forces can be large or small.
- The force a crane uses to lift a truck is huge.
- The force your hand uses to lift a feather is tiny
- The more force you use, the faster an object will move

WATCH VIDEO ABOUT FORCE

FRICTION

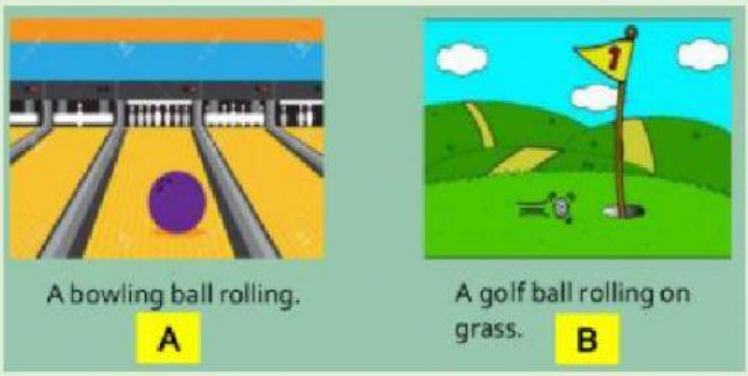
It is a force when one object rubs against another.

WATCH VIDEO ABOUT FRICTION

PRACTICE QUESTIONS:

1. What happens as you apply your bicycle brakes?
   a. You increase friction.
   b. You increase gravity.
   c. You speed up.
   d. You decrease friction

2. Which one has more friction?



3. Which one has less friction?

4. Which one has more friction?