

## **MOTION**

CHAPTER NO.2

SUB: PHYSICS

MOTION

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**CHANGING YOUR TOMORROW**

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## LEARNING OBJECTIVE

Students will be able

- Define motion
- Identify objects in motion and rest



## Rest and motion

### Rest

A body is said to be at rest if it does not change its position with respect to its immediate surroundings and with respect to time.

### Example

The chairs of the dining table are at rest unless and until they are moved, and the flower vase, table, and the blackboard in the class room are all at the position of rest.

### EXAMPLES FOR THE STATE OF REST



Tools lying on the floor



Bench in the Park



Books on the table

## Motion

A body is said to be in motion if it changes its position with respect to its immediate surroundings and with respect to time.

## Example

The blades of a rotating fan, the hands of a working wall clock, a moving car, a spinning top and satellites are all in motion. Rest and motion are relative terms, A body seems to be at rest with respect to one object, but may appear to be in motion with respect to some other object.

A person on a railway platform is at rest with respect to another person on the same platform, but is in motion with reference to a person looking at him from a train crossing that platform. Similarly, a passenger sitting in the train will appear at rest to another passenger on the same train.

## EXAMPLES FOR THE STATE OF MOTION



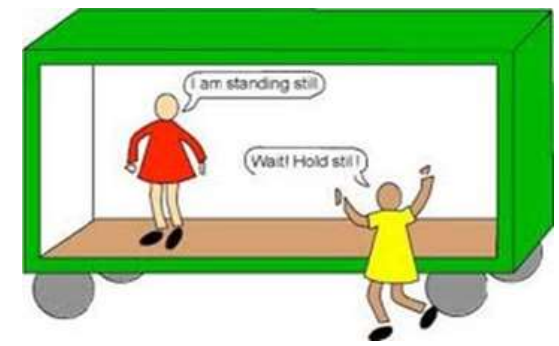
Sea Surfing



High Speed Train



Snowboarding



## Rest and motion are relative

An object can be in motion relative to one set of objects while at rest relative to some other set of objects. Thus, rest and motion are relative terms.

This can be understood by following examples.

Examples: These two states i.e. (rest and motion) are relative, relative means they are related to each other, because all the observation about an object in rest and motion depend upon frame of reference in which we are doing observation, these states varies according to frame of reference.

Person sitting in a bus is in rest according to his fellow passengers, inside the bus, but he is in motion according to the person standing on bus station observing the moving bus. So this is just the matter of frame of reference in which we are observing.



fig. 1



fig. 2

## HOME ASSIGNMENT

- Explain the meaning of the terms rest and motion
- Comment on the statement 'rest and motion are relative terms'. Give an example
- Fill in the blanks using one of the words : at rest, in motion.
  - (a) A person walking in a compartment of a stationary train is relative to the compartment and is relative to the platform.
  - (b) A person sitting in a compartment of a moving train is relative to the other person sitting by his side and is relative to the platform.

THANKING YOU  
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