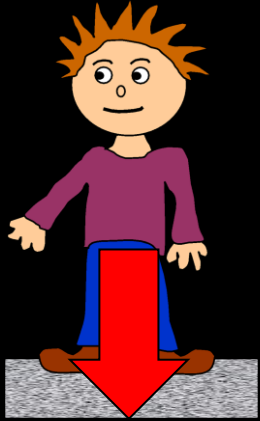


# Forces and their effects

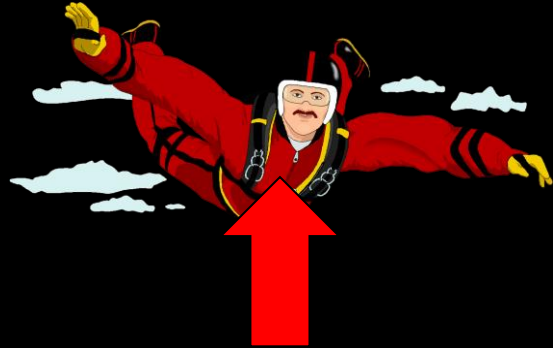
Please note - some of the animation effects used here only work in PP XP

# What is a force?

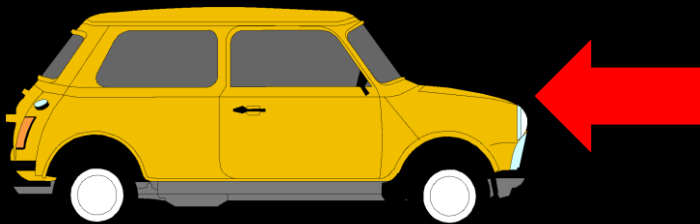
A force is a "push" or a "pull". Some common examples:



\_\_\_\_\_ - pulls things downwards



\_\_\_\_\_ (drag) - acts against anything moving through air



\_\_\_\_\_ - acts against anything moving



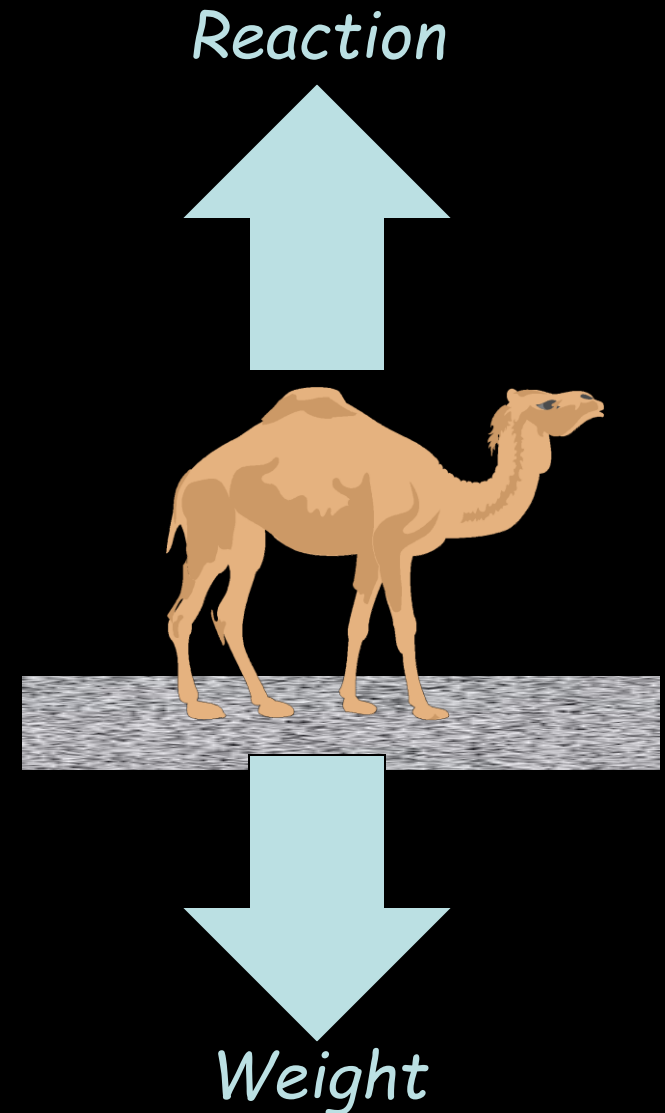
\_\_\_\_\_ - keeps things afloat

Words - upthrust, air resistance, friction, weight

# Balanced and unbalanced forces

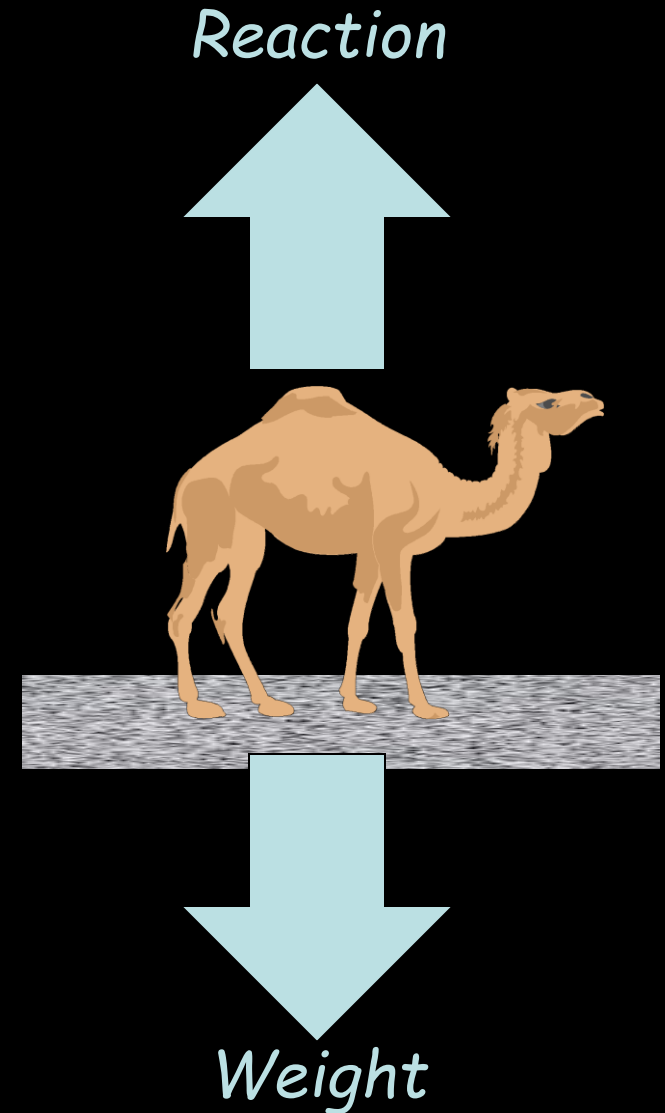
Consider a camel standing on a road.  
What forces are acting on it?

*These two forces would be equal -  
we say that they are **BALANCED**.  
The camel doesn't move anywhere.*



# Balanced and unbalanced forces

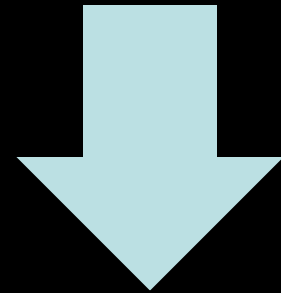
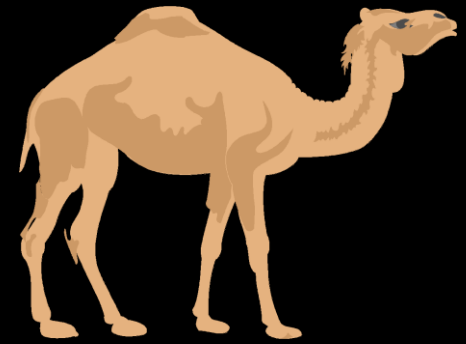
What would happen if we took the road away?



# Balanced and unbalanced forces

What would happen if we took the road away?

*The camel's weight is no longer balanced by anything, so the camel falls downwards...*



*Weight*

# Balanced and unbalanced forces

What would happen if we took the road away?

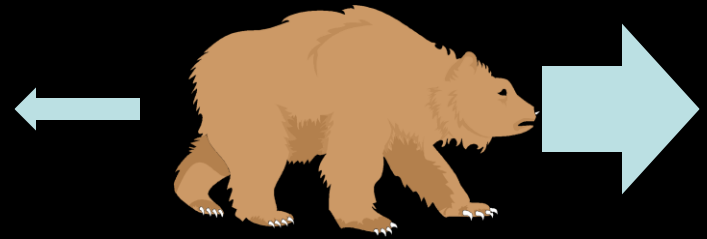
*The camel's weight is no longer balanced by anything, so the camel falls downwards...*

# Balanced and unbalanced forces

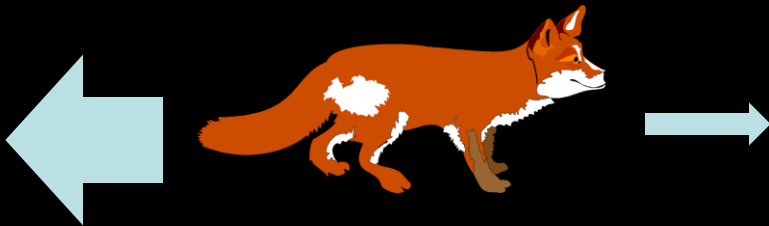
1) This animal is either \_\_\_\_\_ or moving with \_\_\_\_\_...



2) This animal is getting \_\_\_\_\_...



3) This animal is getting \_\_\_\_\_....



4) This animal is also either \_\_\_\_\_ or moving with \_\_\_\_\_..

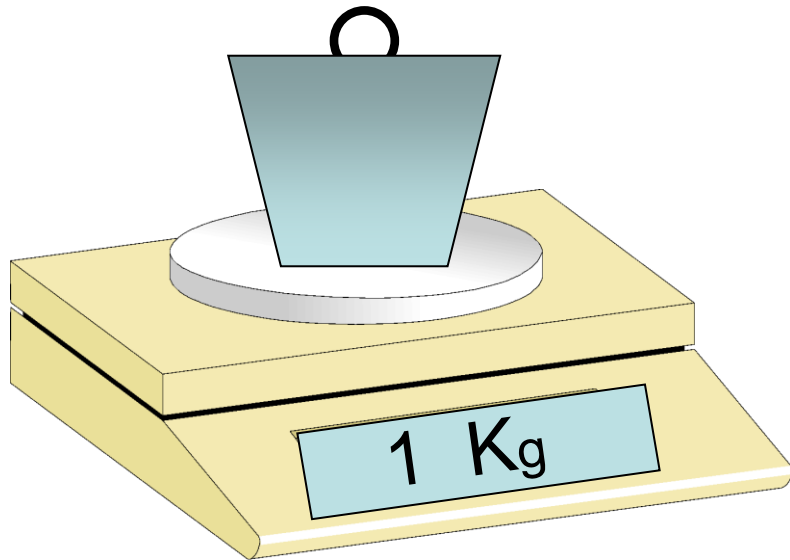


Words - Stationary, faster, slower or constant speed?

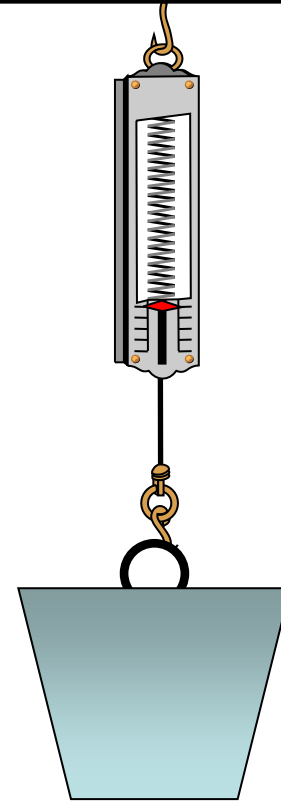
# Weight and Mass

The **MASS** of an object is a measure of how much "stuff" it contains".

The **WEIGHT** of an object is the amount of force that pulls it downwards due to gravity.



This object has a **MASS** of 1Kg...

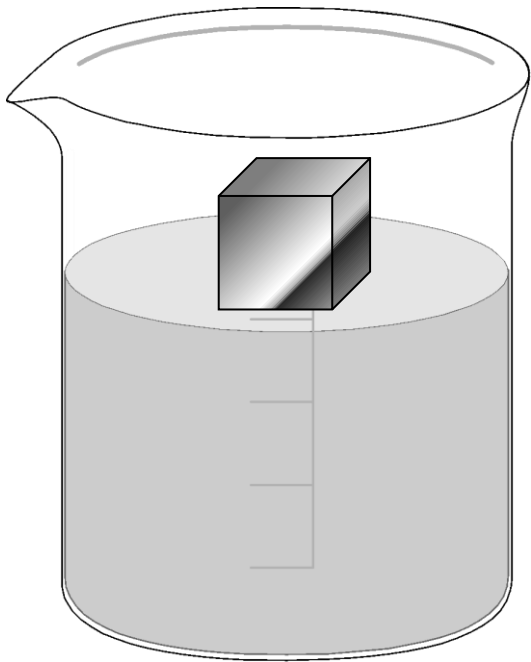


...and a **WEIGHT** of 10N

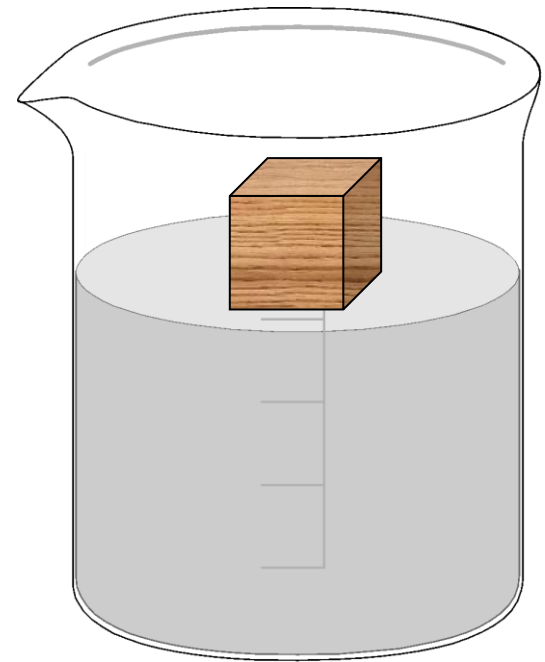


# Floating

Whether or not an object will float depends on its DENSITY.  
For example:



The metal block will \_\_\_\_\_  
because it is \_\_\_\_\_  
dense than water



The wooden block will \_\_\_\_\_  
\_\_\_\_\_ because it is  
\_\_\_\_\_ dense than water

# Friction

1) What is friction?

1) Give 3 examples where it is annoying:

2) Give 3 examples where it is useful:

3) What effect does friction have on the surfaces?

# Stopping a car...

Tiredness

Too much alcohol

*Thinking distance*

Too many drugs

Poor visibility

Icy roads

Wet roads

*Braking distance*

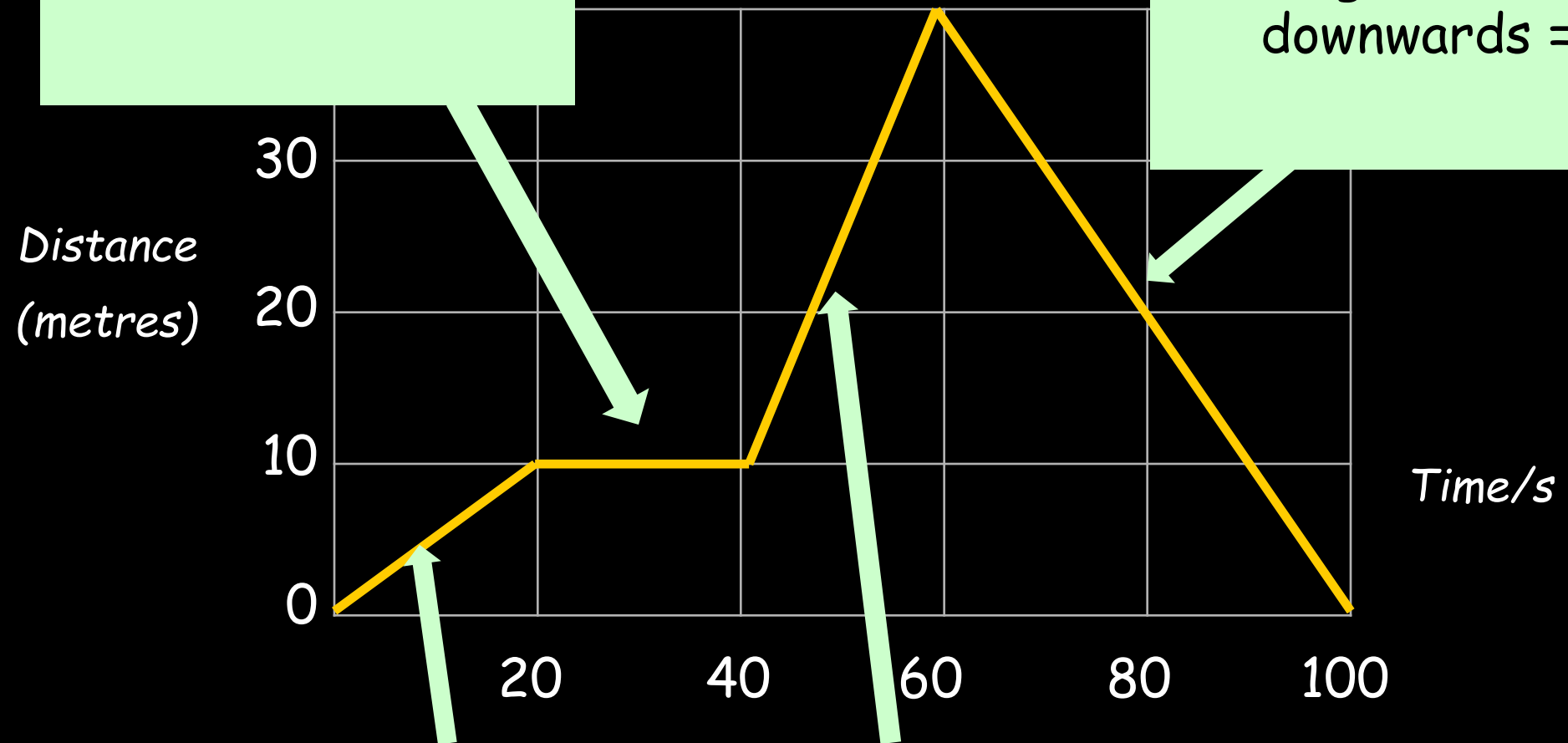
Tyres/brakes worn out

Driving too fast

# Distance-time graphs

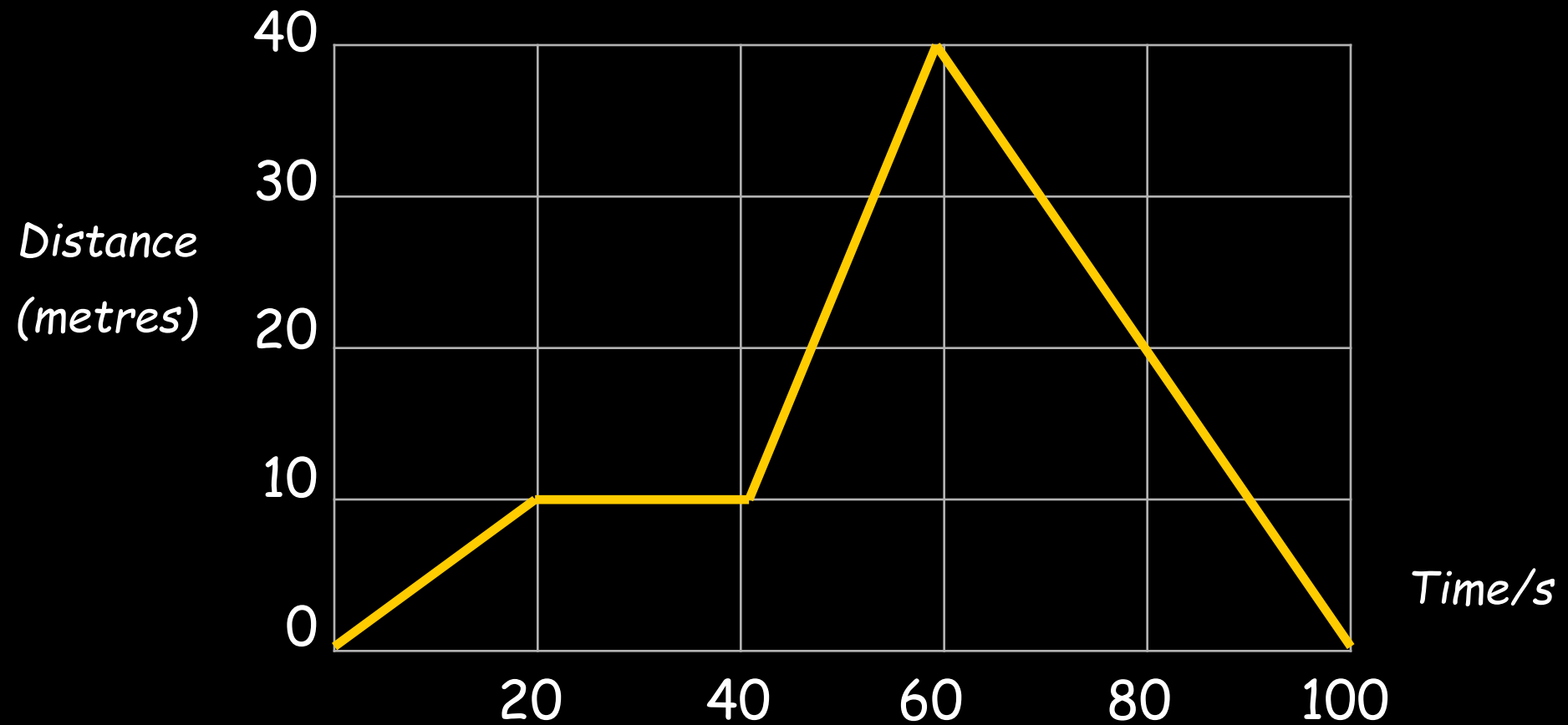
2) Horizontal line =

4) Diagonal line downwards =



1) Diagonal line =

3) Steeper diagonal line =



- 1) How far had the object gone after 20 seconds?
- 2) How far had the object gone after 60 seconds?
- 3) When is the object standing still?
- 4) When was the object travelling the fastest?