HKUGA College

Learning experience

- Student involvement
- Daily life experience
- Interesting

Assessment

- Exercise
- Lab report
- Quiz
- Test
- Exam…
  - For traditional “bright” student

Assessment

- Poster
- Powerpoint presentation
- Video

  - For someone who wish to show their ideas
  - For someone who wish to pay effort

Examples…

- Displacement, velocity and acceleration
- Thermometer
- Conservation of momentum

The journey from HKUGAC (point A) to my home (point B)

Total distance travelled = 15.6km

Displacement :

Only **7** km

(N75E) (the direction is also needed)

Time for a proper definition

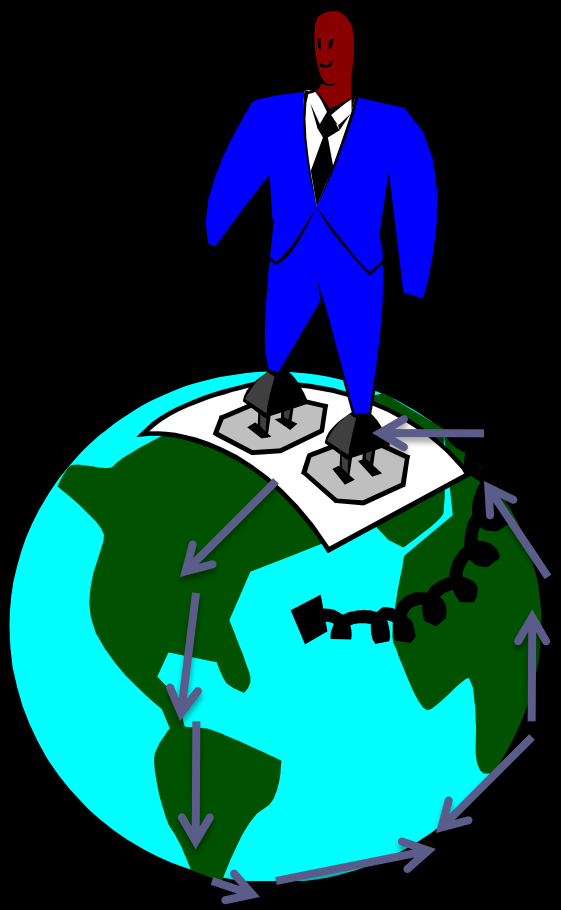
Distance = total distance travelled

Displacement = a measure of the change in position

It consist of two pieces of information:

Magnitude = is the length of the street line joining initial and final positions.

Direction = points from initial to final position



In the novel around the world in eighty days, Phileas Fogg travelled around the world.

Distance = 40030km

Displacement = 0km (as initial position equals to final position)

An example to calculate velocity

A journey from city hall to cultural centre

Time = 0.5 hour

displacement
1.8km

Distance
=13.2 km

$$\text{Velocity} = \frac{1.8}{0.5}$$

=3.6km/h (N35E)

$$\text{Speed} = \frac{13.2}{0.5}$$

=26.4km/h

Extra Facts

Force Causes Acceleration

- Acceleration depends on net force
- Increase net force to increase acceleration
- Acceleration is directly proportional to net force

  - Double net force → doubles acceleration
  - Triple net force → triples acceleration

Example…

Consider an object at rest, such as a hockey puck on ice

-Apply a force, it starts moving

-Force caused the acceleration

-Moves at constant velocity once the force is no longer applied

Mass Resists Acceleration

- For a given force, the acceleration produced is inversely proportional to the mass
  - Same force, twice the mass → half the acceleration
  - Same force, triple the mass → 1/3 the acceleration

Another Example…

- Push on an empty shopping cart
- Push equally hard on a heavily loaded shopping cart.
  - Which on has the smaller acceleration? Why?
- Shows that acceleration depends on mass

Newton's Second Law

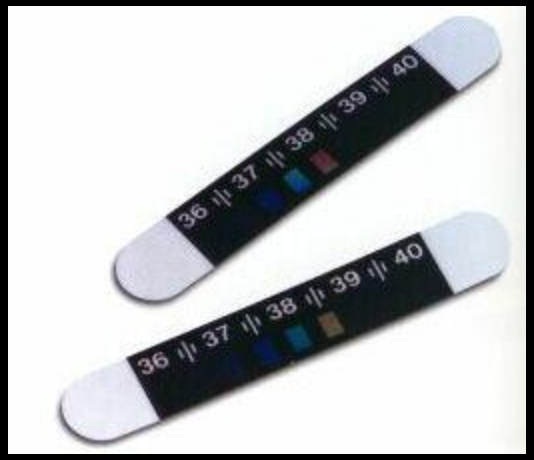
- The acceleration produced by a net force on an object is directly proportional to the magnitude of the net force, is in the same direction as the net force, and is inversely proportional to the mass of the object

Great Thanks to all

Sorry to you that this is all I know, for further knowledge, I still can’t tell…

Assessment for learning

- Instant feedback
- Peer assessment
- Enhancement of discussion
- Active learning vs Passive learning



Liquid Crystal Thermometer

Class: S3CW

Group Members: John Tsoi, Jonathan Cheung, Navin Tsung, Tom Leung

What is it?

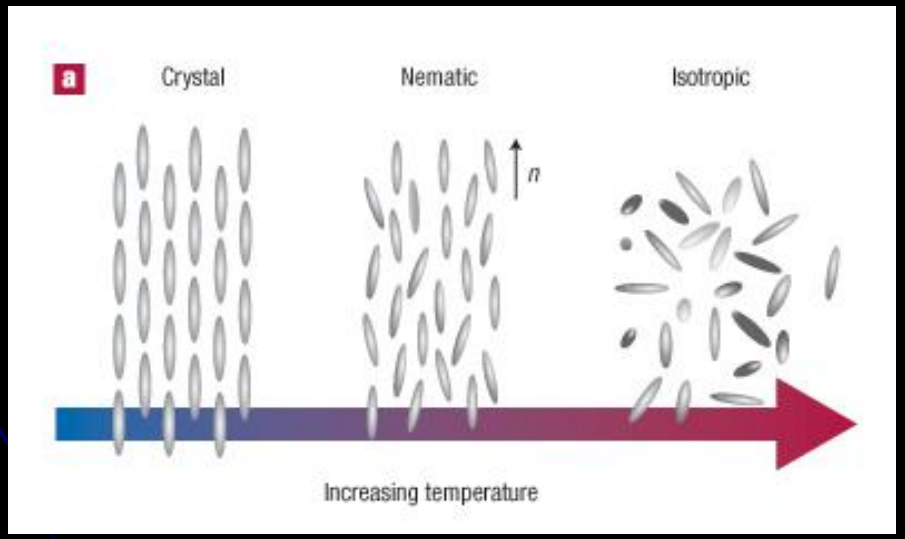
- Contains heat-sensitive (thermochromic) liquid crystals in a plastic strip

- Temperature changes affect the color of a liquid crystal for temperature measurement.

How does it work?

- 1st: the hot nematic stage: the molecules are freely moving around

- 2nd: the cold smectic stage: the molecules align themselves into tightly wound chiral matrixes



Liquid Crystal Thermometers at home

- Disposable liquid crystal thermometers developed for home and medical use
- Eg: If a black thermometer is put onto the forehead, it will change colour depending on temperature.
- Resolution of liquid crystal sensors is in the 0.1°C range.

Conservation of momentum

- Video Show

Breakthrougth

- Teaching
- Learning
- Assessment