

Physics

Q1:
What is a Sankey diagram used to show?

Answer:
A diagram that represents energy transfers by arrows. The width of each arrow depends upon the amount of energy it represents.



Physics

Q2:
What is meant by energy transfer?

Answer:
Energy is converted from one form into others. The total amount will be the same.



Physics

Q3:
What is the difference between a series and a parallel circuit?

Answer:
Series circuit: everything is connected together in one loop.
Parallel circuit: each component is connected separately in its own loop.



Physics

Q4:
Where does the energy in a food chain originally come from?

Answer:
The Sun



Physics

Q5:
A loudspeaker transfers electrical energy into what other energy form?

Answer:
Sound



Physics

Q6:
White light can be split into different colours using a prism. What is this called?

Answer:
Dispersion



Physics

Q7:
Explain what you would see if a blue filter is placed in front of a light source.

Answer:
Blue light. The filter only lets blue light through, all the other colours are absorbed.



Physics

Q8:
Why do white materials appear white?

Answer:
They reflect all the colours in light.



Physics

Q9:
What are the three ways in which heat energy can be transferred?

Answer:
Conduction
Convection
Radiation



Physics

Q10:
What is a convection current?

Answer:
Heat warms the air, the particles move faster and the air becomes less dense. The air rises and this forms a convection current.



Physics

Q11:
Explain why heat is transferred through solids by conduction.

Answer:
Heat energy makes the particles vibrate. The vibrations are passed on because the particles are close together.



Physics

Q12:
Why do sounds travel fastest through solids?

Answer:
The particles in solids are closer together and the vibrations can pass along quickly.



Physics

Q13:
What is meant by amplitude?

Answer:
The height of the wave. Loud sounds will have a large amplitude.



Physics

Q14:
How can sound waves be visualised?

Answer:
With an oscilloscope.



Physics

Q15:
How do we hear sounds?

Answer:
We hear sounds when vibrations in the air make parts of our ears vibrate. The vibrations are converted to electrical signals which are sent to the brain.



Physics

Q16:
What is frequency and what units is it measured in?

Answer:
The number of waves produced in one second. It is measured in Hertz (Hz).



Physics

Q17:
What kind of sounds have high frequencies?

Answer:
High pitched sounds.



Physics

Q18:
What are forces measured in?

Answer:
Newtons (N)



Physics

Q19:

What is the difference between mass and weight?

Answer:

Mass is the amount of matter that something is made of.

Measured in g or kg.

Weight is the amount of force with which gravity pulls something towards the Earth.

Measured in Newtons (N).



Physics

Q20:

What is gravity?

Answer:

The force of attraction between 2 objects.



Physics

Q21:

What is friction?

Answer:

A force that resists the movement of an object and tries to slow it down.



Physics

Q22:

Explain what is meant by balanced forces.

Answer:

Forces that are equal in size and acting in opposite directions.



Physics

Q23:

When forces are balanced what happens to a moving object?

Answer:

It will move at a constant speed.



Physics

Q24:

How can speed be calculated?
Give an example of the units that should be used.

Answer:

$\text{speed} = \text{distance} \div \text{time}$

Metres per second m/s

Kilometres per hour km/h

Miles per hour mph



Physics

Q25:

Give an example of a contact force and a non-contact force.

Answer:

Contact: friction, air resistance

Non-contact: gravity



Physics

Q26:

Which materials are magnetic?

Answer:

Iron, cobalt and nickel



Physics

Q27:

What is a magnetic field?

Answer:

The space around a magnet where it can affect magnetic materials.



Physics

Q28:
What are the rules of attraction for magnets?

Answer:
Like poles repel.
Opposite poles attract.



Physics

Q29:
What is an electromagnet?

Answer:
A magnet made using an electric current.



Physics

Q30:
How can the strength of an electromagnet be increased?

Answer:
Increasing the number of coils.
Increasing the current.
Using a core made of magnetic material.



Physics

Q31:
What is pressure and how can it be calculated?

Answer:
Pressure is the force on a certain area.
 $\text{Pressure} = \text{force} \div \text{area}$



Physics

Q32:
Use ideas about pressure to explain how a drawing pin works.

Answer:
The round end has a large area, so it applies a low pressure to your thumb. The sharp end has a very small area, this produces a high pressure there, so it pushes into the notice board.



Physics

Q33:
What is the turning effect of a force called?

Answer:
The moment.



Physics

Q34:
What is a solar eclipse?

Answer:
When the moon is between the Sun and the Earth, and casts a shadow on part of the Earth.



Physics

Q35:
Why do we have days?

Answer:
The Earth spins on its axis, completing one rotation every 24 hours. This gives us daytime and night-time.



Physics

Q36:
What causes seasons?

Answer:
The Earth is tilted on its axis. During the summer we are tilted towards the sun, during winter we are tilted away from the sun.



Physics

Q37:
What is a satellite?

Answer:
Anything that orbits a planet or a moon.



Physics

Q38:
What keeps planets in orbit?

Answer:
The force of gravity between each planet and the Sun.



Physics

Q39:
Early ideas about the Solar System placed the Earth at the centre - what were these ideas based on?

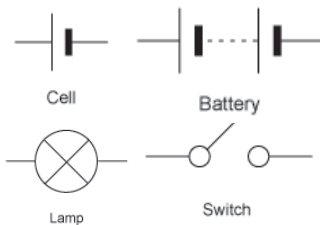
Answer:
Partly based on observations and partly based on religious ideas.



Physics

Q40:
Draw the symbols for the following electrical components:
a) Cell b) battery
c) lamp d) switch (open)

Answer:



Cell

Battery

Lamp

Switch



Physics

Q41:
How can you measure the current in a circuit? What are the units?

Answer:
Using an ammeter.
Current is measured in Amps, (A).



Physics

Q42:
What is a luminous object? Give an example?

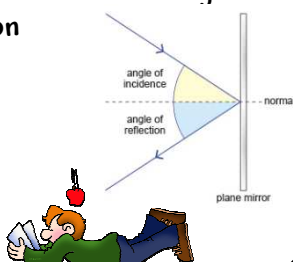
Answer:
Something that gives out light.
The Sun, a light bulb, a candle, a torch, a fire.



Physics

Q43:
If you reflect light off a plane mirror, what does the angle of incidence equal? Draw a diagram.

Answer:
Angle of incidence = angle of reflection



Physics

Q44:
What is refraction?

Answer:
The change in direction of light goes from one transparent material to another.



Physics

Q45:
What is loudness measured in?

Answer:
Decibels (dB).

