

Dispersion of White Light



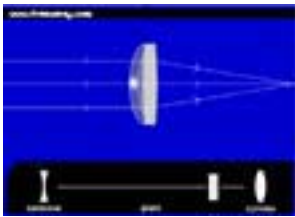
This resource is best used as a **summary** or **plenary** for lessons on colour. The default setting for the program shows a colourless filter. This shows that such a filter allows all the colours in white light to pass through. The other filters can be then selected to show how they let only their colour through. Furthermore, the program shows that white light can be dispersed by the spectrum, showing the different degrees of refraction for each colour. One plenary idea is to ask what each filter would do.

Coloured Filters



This shows what coloured objects would appear like if viewed through 'perfect' red, green or blue filters. This can be used as a **plenary** resource or to support the main part of the lesson on colour and filters. Students could be shown how the flags would look if viewed through the default red filter and then asked to draw what they would expect selected flags to look like through the other two filters.

Concave – Convex Lens



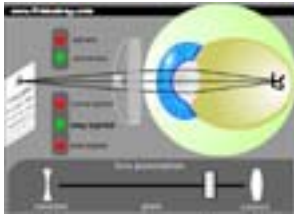
This achieves what is practically impossible in the science lab, a lens that can change its shape between convex, plain and concave. The resource can be used as a **plenary** on a practical lesson on lenses where the conclusion is that concave lenses diverge light beams and convex lenses cause them to converge. It can also be used to reinforce the fact that the 'thinner' or the 'thicker' the lens the greater the degree of divergence or convergence. This may be used in conjunction with the '*Eye Defects*' resource.

Total Internal Reflection



This can be used as a **plenary** for a practical lesson on total internal reflection using a semicircular block. It shows all the features you would expect to see in such an experiment, the refraction, the reflected beam and total internal reflection at angles greater than the critical angle. This can also be used as a demonstration of the effect if a classroom is unsuitable for light experiments.

Eye Defects



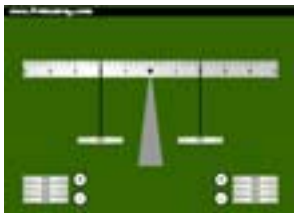
This shows how short and long sightedness occurs and how it can be corrected by selection of the appropriate lens. It is ideally used as a **plenary** for a lesson on converging and diverging lenses. The best way to use the resource is to use this with the 'Convex – Concave Lens' resource to fix the idea in the student's minds that convex lenses converge while concave lenses diverge. The task then of the plenary is to add a lens for an eye defect and predict which kind of lens to use. This will also give the idea that there are different lens prescriptions for different levels of defect.

Reflection at a Plain Mirror



This can be used to show how to construct ray diagrams. It is assumed that students will be familiar with the basic laws of reflection before this is used. The resource has three levels of increasing abstraction. The first level just shows the letter that can be dragged around the screen. This shows what would actually be observed. The second level of abstraction shows the same as the first but with an added ray diagram. The third level shows the ray diagram on its own. Using the different levels should help students to be able to make more progress in understanding ray diagrams.

Balanced Beam



This can be used as a **starter** or a **plenary**. It can be used to start off a lesson on moments by showing the balanced beam and unbalancing it by either moving one of the sets of weights or by adding weights to one side. Students can then be asked to rebalance the beam. This will be done instinctively or by trial and error. A practical lesson can then follow to demonstrate the 'Principle of Moments'. The resource can then be reused but this time students must say what needs to be done to rebalance the beam.



Distance Multipliers 1 and 2

Two simple teaching aids that show distance multipliers in action. Firstly a mechanical example and secondly a natural one.



Levers Starter

A 'talking point' **starter** for a lesson on levers. Examples of questions that can be asked are:



"What will happen if the handle is pulled?"

- "Explain why the bell will ring if the handle is pulled"
- "What is the sequence of events that makes the bell ring?"
- "Why does the clanger return to its original position if the handle is released?"
- "How many pivots are there?"

Gravity



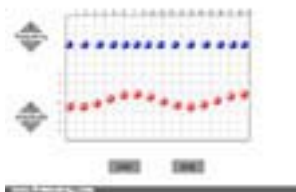
A **summary** of gravity. All the main points of gravity can be summarised; that the force of gravity always points to the centre of the Earth, that there are equal and opposite forces involved and that the size of the force depends on the mass of the object. This can be explained whilst using the program or students can be asked to summarise the points whilst observing the use of the program.

Moments Plenary

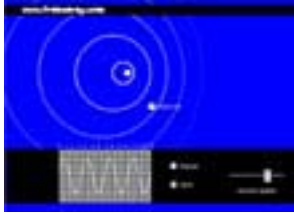


Designed as a **plenary** for a lesson on the 'Principle of Moments'. Students are asked to move the weights onto the beam so it will balance when released. The challenges (10 of them) become increasingly challenging.

Transverse and Longitudinal Waves



A simple **visual aid** that can be used to compare and contrast transverse and longitudinal waves. The frequency and amplitude of the waves can be adjusted and the waves 'frozen' in time.



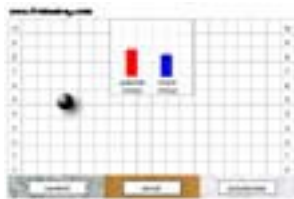
The Doppler Effect

A **visual aid** to show how waves emanate from a moving source and the appearance of the waves by a stationary observer. The speed of the moving wave source can be altered and the source can be 'frozen' in time.



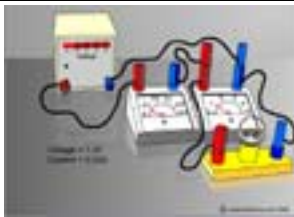
Critical Damping

A simple **visual aid** to show how weighted springs move if un-damped, over=damped or critically damped. This can be used as starter for graphical analysis of damping.



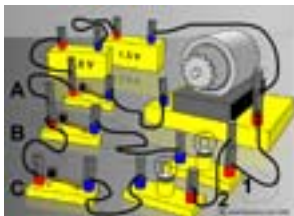
Bouncing Ball

A **starter** for either energy conservation or investigations into bouncing balls on different surfaces. The bar chart shows how gravitational potential energy is converted into kinetic energy and back again. The energy loss is to the surroundings/. This could be used to start debates/questions on energy conversions.



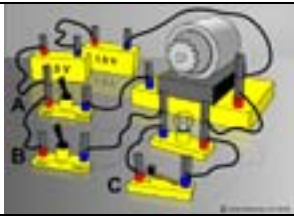
Voltage and Current

Can be used as a **visual aid** or a **plenary** activity to reinforce the relationship between voltage and current. The values generated can be used to create a graph (straight line).



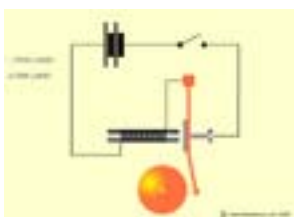
Switches 1

A simple **starter** activity for a lesson on branched circuits and switches. The **visual aid** can be used to show that separate components can be controlled with switches. Students can then be asked to design (or make) circuits that can control various devices.



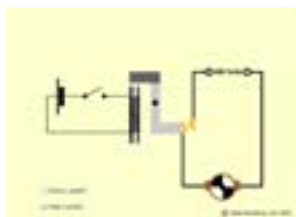
Switches 2

Similar to *switches 1* but with a short circuit.



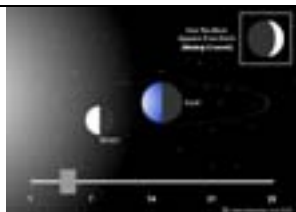
Electric Bell

A **visual aid** that shows the operation of an electric bell. The movement is slowed down so that the sequence of events is followed more easily. One way of using the resource is to show the animation and ask students to describe the sequence of events. This can be used in conjunction with *The Relay* animation.



The Relay

A similar resource to '*The Electric Bell*' that can be used in a similar way.



Phases of the Moon

A **visual aid**, which is designed to show the phases of the moon through the lunar month.



Seasons

A **visual aid**, which is designed to show how the tilt of the Earth's axis gives rise to the seasons. The animation in the top left of the screen shows the path of the Sun throughout the year.