**Worksheet 4 Exploring white light and filters**

*Description: C:\Users\James\AppData\Local\Temp\Temporary Internet Files\Content.IE5\Z9KLXMO7\MC900197938[1].wmfIn this experiment you will investigate what happens to white light when it passes through a prism.*

*Take the torch and ensure that the narrow cardboard slit is securely fastened. Shine the torch through one side of the prism and try to align the prism and torch so that light leaving the prism will arrive on a white sheet of paper and form a ‘spectrum’ of colours.*

1. Describe what you observe and draw a diagram of the relative positions of the torch, prism, and screen. Show in the diagram the relative position of red light and violet light on the screen.

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2. There are two possible explanations for the colours you have observed on the screen. These are:

(a) The prism changes white light into different colours

(b) White light is a mixture of different colours to begin with and the prism separates them

Which of these explanations is correct? How do you know based on your observations?

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Can you suggest an experiment that might be able to resolve which of the two possibilities is correct?

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3. Take a coloured filter and place it in the path of the light leaving the prism.

**Prism**

**White Light**

**Paper Screen**

What colour is the light arriving on the screen?.................................................

Explain how you think the filter affects the light.

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4. Take a coloured filter and place it in the path of the light entering the prism.

**Prism**

**White Light**

**Paper Screen**

What colour is the light arriving on the screen?..................................................

What colour is the light after passing through the filter? ..............................

5. Which of the two possibilities in Question 2 is supported by your observations? Explain.

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