Lesson Plan Three – Day and Light

Y5 Maths Learning Objectives	Y5 Science Learning Objective	Key aspects of other learning
Number • Solve problems involving multiplication. • Use all four operations to solve problems involving measure.	**Working Scientifically** • Recording data and results of increasing complexity.	• To know that the energy we use is influenced by a variety of factors. • To know that there are different types of lights with different degrees of energy efficiency.

Introduction – 10 minutes

Collect in the parents' **Energy Heroes Quizzes** and congratulate your **Energy Heroes** on completing their first mission. Did they change the way they used energy? Discuss what happened at home when they placed the tags on appliances. Were people surprised by the costs?

Help pupils to fill in their **Weekly Energy Monitoring Sheet** using data from their **Log Books** to calculate the total energy used or generated in school in the past week. *How is the energy used differently to last week? Can you explore why that might be?*

Main Activities

A – 25 minutes

Consider the use of one kind of energy user: lights. Look back at pupils' **Home Energy Audits**. How many lights were counted? Look at the table on the **Lights On!** worksheet that describes how much energy different kinds of lights use and what that costs. Help pupils to calculate the cost of lights left on for 1 hour in their homes, using the **Lights On!** worksheet to record their results. They will need to begin by rounding the cost per hour up to the nearest 0.1p. (Pupils don't need to be able to remember exactly what types of light bulb are used in each of their rooms. A reasonable guess is adequate in order to develop their problem-solving and data handling skills and to make the point that there is a difference between types of light in terms of cost.)

B – 15 minutes

Discuss what influences our energy use. Help pupils develop short role plays that illustrate how to further influence energy-saving behaviours at home. These could be for example: a conversation between a big brother and our **Energy Hero** about leaving their Xbox on overnight; a comedy sketch of our **Energy Hero** zooming around the house turning lights off; a mimed piece of 'copy cat' drama showing our **Energy Hero** demonstrating energy-saving techniques to family members; a solar salesman trying to persuade a home owner to buy solar panels. (These role plays could be used in the **Community Event**.) For other top tips about energy saving, explore together the information on the *Energy Saving Trust* website or explore some YouTube clips about energy saving and energy conservation for kids.

Plenary – 10 minutes

Explore the **Log Books** that you have been completing at school. Explain that this week, pupils will be taking these home to collect data about energy use at home instead of at school. They will need to speak to their parents/carers about doing this as they will need to read either their electricity or gas meter. Pupils should ask parents/carers to check their readings and sign their **Log Books** to verify the reading. They should use this activity in their capacity as an **Energy Hero** to further engage family members in energy-saving behaviours. (It's important to stress the relevance and use of this activity, but also to confirm that it won't be possible for everybody to do so we will be looking to share some collected data next lesson. Families will have been made aware of this meter-reading activity in the letter that accompanied the **Energy Heroes Quiz** after Lesson One.)

Pupils will need their completed **Log Books** in school for the next lesson.

They also need to bring in a wooden spoon ready for some very evil work ...

Home and School Challenges

- Be a light monitor and switch lights off if not in use.
- Continue to try and influence energy-saving behaviours at home.
- Complete your meter reading **Log Book** for home energy use.
- Bring in a wooden spoon for the next lesson.

Resources

- Worksheet – **Weekly Energy Monitoring Sheet**
- Worksheet – **Lights On!**
- Energy Saving Trust website – **www.energysavingtrust.org.uk**

Lights On!

(A) Type of light	(B) Cost per hour	(C) Where is it and how many?	(D) How long is it left on for every day?	Total cost for these lights each day. = B x C x D
60 watt  Conventional Incandescent Bulb	1 hour = 0.06 x 13 pence per kilowatt hour = **0.78 pence each hour**	(Example) Lounge: 2	6 hours	0.78 x 2 x 6 = 9.36p
				Total for 1 day = **For 365 days =**

(A) Type of light	(B) Cost per hour	(C) Where is it and how many?	(D) How long is it left on for every day?	Total cost for these lights each day. = B x C x D
20 watt  Compact Fluorescent Lamp	1 hour = 0.02 x 13 pence per kilowatt hour **= 0.26 pence each hour**			0.26 x
				Total for 1 day = **For 365 days =**

(A) Type of light	(B) Cost per hour	(C) Where is it and how many?	(D) How long is it left on for every day?	Total cost for these lights each day. = B x C x D
80 watt  Strip Light	1 hour = 0.08 x 13 pence per kilowatt hour **= 1.08 pence each hour**			1.08 x
				Total for 1 day = **For 365 days =**

(A) Type of light	(B) Cost per hour	(C) Where is it and how many?	(D) How long is it left on for every day?	Total cost for these lights each day. = B x C x D
7 watt  LED Spot Light	1 hour = 0.007 x 13 pence per kilowatt hour **= 0.091 pence each hour**	(Example) Kitchen: 8	6 hours	0.091 x 8 x 6 = 4.36p
				Total for 1 day = **For 365 days =**