

Lesson Plan Two – How Much?

Y5 Maths Learning Objectives	Y5 Science Learning Objective	Key aspects of other learning
<p>Number – Multiplication and division</p> <ul style="list-style-type: none"> Solve problems involving multiplication. Multiply numbers of up to four digits by a one – or two – digit number. Solve addition and subtraction multi-step problems in contexts. 	<p>Working Scientifically</p> <ul style="list-style-type: none"> Reporting and presenting findings from enquiries. 	<ul style="list-style-type: none"> To understand what is meant by the terms ‘climate change’ and ‘global warming’. To understand that appliances in the home use energy in different ways. To know that there are ways to change the amounts of energy we use and that this can lead to savings in terms of cost, CO₂ and kWh.

Introduction – 10 minutes

Ask pupils to get out their **Home Energy Audit** and compare what they found with a partner. *Who had the most appliances? Which room do you think uses the most energy? Where do you think energy might be wasted? What conclusions can you make about energy use in your home?*

Complete the first row of data on the **Weekly Energy Monitoring Sheet** worksheet to describe the energy used in school last week. Discuss how this amount of energy could be reduced and make a prediction about what this figure might be next week.

Main Activities

A – 10 minutes	B – 15 minutes	C – 15 minutes
<p>Show a short climate change or global warming film. (There are some good animations and cartoons on YouTube suitable for children.) Ask pupils what they have learnt from these films and why they need to become Energy Heroes. Why are renewable energy sources good for the earth?</p>	<p>Explore the cost of using different appliances, excluding lights, using the Appliance Photo Sheet. Pupils need to use the Counting the Cost worksheet to calculate the costs of appliances in their own homes by referring to the Appliance Photo Sheet and their Home Energy Audit. For some pupils, you may need to round amounts per hour to make the calculations simpler.</p>	<p>Using the data on the Appliance Photo Sheet and/or other online data research, design and make cost tags to attach to and label appliances at home. These tags describe the cost per appliance in terms of pence per hour. Each child should be given six tags to clearly label and design. These tags are to highlight energy use at home so that families can begin to understand where cost savings can be made. <i>(For example: Only put the water that you need in the kettle; turn off the radio when you are not in the room; can your hair ‘air dry’ one day a week?)</i></p>

Plenary – 10 minutes

Begin discussing how to influence the energy use of the other people who live in our houses. Include the use of the energy tags that have been made today. *Can you work together in your home to try and significantly reduce your energy consumption over the next 4 weeks? What do you need to tell your family members? Can you be a good role model? Which appliances do you think need the most attention?*

Home and School Challenges

- Safely place tags on appliances at home to describe how much they cost.
- Begin trying to influence behaviours at home.
- Continue to collect data. Share and complete **Log Book** meter readings for school energy use.

Resources

- Information Sheet – **Appliance Photo Sheet** showing appliances and their running cost per hour
- Worksheet – **Counting the Cost**
- Worksheet – **Weekly Energy Monitoring Sheet**
- Blank tags** to design and make cost tags for home appliances
- Short film about climate change/global warming. (Search for these on YouTube)

Appliance Photo Sheet



24p per hour



24p per hour



24p per hour



3p per hour



5p per hour



0.2p per hour



2.5p per hour



48p per hour



4p per hour

Counting the Cost

How much energy do my appliances use each week? _____

How much do my appliances cost to run each week? _____

Appliance	How many?	Cost per hour?	Average number of hours used per day	Cost per day of appliance
Example: Kettle	2	24p	1	$2 \times 24p \times 1 = 48p$
Total cost for these appliances in one day at my house				

I can identify the data necessary to solve a given problem. _____

I can select and use appropriate calculations to solve problems involving data. _____

I also know that _____



Weekly Energy Monitoring Sheet

Name _____ Class _____

School _____

	Date at start of week	Meter reading at start of week	Meter reading at end of week	Total energy used or generated (in kWh) over the week.	How much more or less energy used than last week?
Week One					Not Applicable
Week Two					
Week Three					
Week Four					
Week Five					
Week Six					

