Lesson Plan Five – Be A Saver!

Y5 Maths Learning Objectives	Y5 Science Learning Objective	Key aspects of other learning
Number – Addition and Subtraction • Add and subtract whole numbers with more than four digits. • Solve addition and subtraction multi-step problems in contexts.	**Working Scientifically** • To seek answers to questions through collecting, analysing and presenting data.	• To make connections between energy saving and climate change. • To recognise the importance of exploring a wide range of energy-saving behaviours.

Introduction – 10 minutes

Look at any photos taken by pupils of their **Evil Standby Characters** at home. Discuss how many appliances they found that are usually left on standby.

Share and compare the home energy use described in pupils' **Log Books**. Complete the **Weekly Energy Monitoring Sheet** to describe the total amounts of energy used and compare it to last week's total. *Is it greater or less than last week? Why might this be?*

Main Activities

A – 20 minutes

Look at the range of data we have accumulated. *What story does it tell?* In order to compare data more accurately, explain to the pupils it's necessary to identify the average amount of energy used over the course of our monitoring. Explain to pupils that another mathematical term for 'average' is 'mean'. Explain that it is also useful to describe the range of data. *What is the lowest amount of energy we use each week and what is the highest?* Practise finding averages and the range of simple data sets as a class in order to secure their understanding of this aspect of data handling.

B – 20 minutes

Hand out the worksheet called **Finding the Mean and Range of our Data**. Explore together how each table is organised and what you need to do in order to complete the table. You will need to take pupils through the process step by step in order to get the right data in each column. Pupils who may struggle with this will need to work in pairs with more able mathematicians or work with the support of another adult. (If decimals have been used to describe energy data, for most pupils these will need to be rounded to the nearest whole unit.)

Plenary – 10 minutes

Discuss the Home Challenge, which is a more detailed home energy audit. Using the **Be A Saver! Checklist**, pupils will be conducting a more thorough investigation of how energy efficient their homes are. Ask pupils to read through the checklist questions and circle which ones they think they will need to ask somebody at home to help them with. Some of these are tricky! But even the conversations at home will encourage a more proactive approach to energy saving. Say to the pupils 'Be a Saver! Go for it!' Explain and remind them that by saving energy they are also helping to save the world. If renewable energy sources **and** energy-saving behaviours were used in all the homes associated with our school, our whole school community would be **Energy Heroes**.

Home and School Challenges

- Complete the **Be A Saver! Checklist** and return it to school for the next lesson.
- Continue to monitor energy use at home or at school (teacher decides which) and record it in your **Log Book**.

Resources

- Worksheet – **Weekly Energy Monitoring Sheet**
- Worksheet – **Finding the Mean and Range of our Data**
- Worksheet – **Be A Saver! Checklist**

Be A Saver! Checklist

About my Heating	Check!
Do you have an Energy Efficient Boiler rated A or B?	
Is your boiler controlled by a Thermostat?	
Can you change the times so that the boiler can come on and off?	
If you have a hot water cylinder, does it have a good jacket on it?	
If you have radiators, do they have numbered settings?	
Do you have storage heaters?	
Do you have loft insulation?	
Are you hot water pipes insulated ('lagged')?	
Have you checked for draughts and tried to seal any up?	
If you have a thermostat, have you considered truning it down by 1 degree to save about 10% of your energy costs?	

About my Home	
Do you have double glazing?	
Do you use the shower more often than a bath?	
Do you recycle anything?	
Do you recycle three or more of the following: food waste; garden waste; glass; cardboard; cans.	
Do you grow your own food?	
Do you usually travel to school on foot, by bur or by bike/scooter?	

About my electricity	
Do you turn lights off when not in use?	
Is the water temperature set at 60 degrees or lower?	
Do you have 5 or more energy saving bulbs?	
If you have a freezer, is it clear of frost?	
Is the kettle filled only with water required at the time?	
Is the washing machine operating a temperature of 40 degrees or less most of the time?	
Do you turn appliances off completely rather than leaving them on standby?	

How many times were you able to answer 'yes' to these questions? The more the better!

Write yourself a *Save it!* list here to help you make any improvements necessary to your home energy efficiency measures.

Save it!

1) _____

2) _____

3) _____

Finding the Mean and Range of our Data

Name _____ **Start date** _____

Get the meter reading for each day from your **Log Book** and copy it into column A.

Work out the difference in energy use between each consecutive day, and write that amount in column B.

Add together all the amounts in column B and put this total in column C.

Divide the total in column C by the number of days in a week and put that total in column D. This is the mean (or average) amount of energy used per day for this week.

Week One	Meter reading for each day **A**	Daily difference in energy use **B**	Total energy used **C**	Mean amount of energy used in one day during this week **D**
Monday				
Tuesday		**Tues – Mon =**		**C ÷ 6 =**
Wednesday				
Thursday				
Friday				
Saturday				
Sunday				

Week Two	Meter reading for each day **A**	Daily difference in energy use **B**	Total energy used **C**	Mean amount of energy used in one day during this week **D**
Monday		**Last Sun – Mon =**		
Tuesday				**C ÷ 7 =**
Wednesday				
Thursday				
Friday				
Saturday				
Sunday				

Week Three	Meter reading for each day **A**	Daily difference in energy use **B**	Total energy used **C**	Mean amount of energy used in one day during this week **D**
Monday		**Last Sun – Mon =**		
Tuesday				**C ÷ 7 =**
Wednesday				
Thursday				
Friday				
Saturday				
Sunday				

Finding the Mean and Range of our Data

Week Four	Meter reading for each day **A**	Daily difference in energy use **B**	Total energy used **C**	Mean amount of energy used in one day during this week **D**
Monday		**Last Sun – Mon =**		**C ÷ 7 =**
Tuesday				
Wednesday				
Thursday				
Friday				
Saturday				
Sunday				

My data about totals of energy used ranges from _____ to _____.

I know that mean is a measure of average and that range is a measure of spread. ☐

I can use the terms range and mean to describe sets of data. ☐

I also know that _____