

# Lesson Plan One – Energy Matters

Y5 Maths Learning Objectives	Y5 Science Learning Objective	Key aspects of other learning
<p><b>Number – Fractions</b></p> <ul style="list-style-type: none"> <li>Recognise the per cent symbol and understand that per cent relates to 'number of parts per hundred'.</li> <li>Write percentages as a fraction with a denominator of 100.</li> <li>Write percentages as decimals.</li> <li>Complete information in tables.</li> </ul>	<p><b>Working Scientifically</b></p> <ul style="list-style-type: none"> <li>Recording data using tables.</li> </ul>	<ul style="list-style-type: none"> <li>To know that energy is made from a variety of sources and is used in a variety of ways.</li> <li>To understand the terms renewable and non-renewable energy, and to be able to give examples of each.</li> <li>To know that energy use in our home is varied.</li> <li>To know how to monitor energy use.</li> </ul>

## Introduction – 10 minutes

Explain that all the learning that will take place over the next six lessons will explore data and other facts about energy with the aim of improving our problem-solving and data-handling skills, as well as helping us to understand where our energy comes from and how we use it.

Hand out the **Energy Heroes Quiz** and ask pupils to complete it independently. Explain that this questionnaire will be repeated at the end of the project to explore what they have learnt. A similar version of this questionnaire is also ready to go home! It must be given to parents to complete and returned next lesson.

## Main Activities

A – 20 minutes	B – 15 minutes	C – 10 minutes
<p>Use the <b>Exploring Pie Charts worksheet</b>. Recap the relationship between percentages, fractions and decimals.</p> <p>Look at the first pie chart and discuss how it is organised. Title? Units of measurement? Key? Segments? Now try to complete the missing data in the other pie charts based on what is known about percentages and some ideas about energy use.</p>	<p>Prepare pupils to complete <b>My Home Energy Audit</b> as their <i>Home Challenge</i> for this week. The data and information they collect here will be used next lesson. Explore row and column headings and how the table collects information. Explain and give examples of home appliances.</p> <p>Another challenge this week is to begin collecting readings from energy meters at school. Go through the energy <b>Log Book</b> and refer again to row and column headings. Explain that kWh describes the amount of energy used, so it is a unit of measurement. (The watt or kW is the unit of power.) Plan together a rota of pupils to read the school energy meter so that data can be recorded somewhere in class for all pupils to copy into their <b>Log Book</b>. You will need this data collection next lesson.</p>	<p>Pupils should be aware of the dangers and risks associated with electricity. Explore together 'Electrical safety in your home' from <a href="http://www.switchedonkids.org.uk">www.switchedonkids.org.uk</a>.</p>

## Plenary – 5 minutes

Ask pupils to tell you what they know about where energy comes from. Share the **Endless Energy?** information sheet and begin to discuss what effects different forms of energy use might have on the environment. *What makes energy renewable?*

## Home and School Challenges

- My Home Energy Audit**
- Pupil and Adult Energy Heroes Quizzes**
- Energy meter readings at school:** collect, share and record in **Log Books** every day if possible.

## Resources

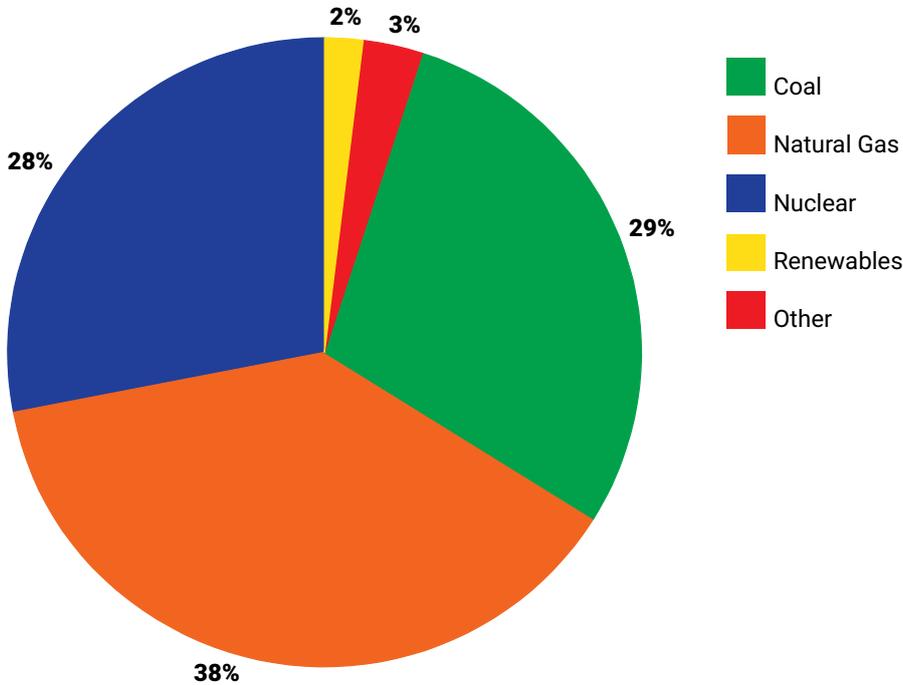
- Pupil and Adult Energy Heroes Quizzes**
- Worksheet – **Exploring Pie Charts**
- Worksheet – **My Home Energy Audit**
- Information Sheet – **Endless Energy?**
- Energy **Log Book**
- 'Electrical safety in your home' video – [www.switchedonkids.org.uk](http://www.switchedonkids.org.uk)
- Envelope containing **Energy Heroes Quiz for Adults**
- Selection of home appliances (hairdryer, radio, phone and charger etc.)

# Exploring Pie Charts

Name \_\_\_\_\_ Date \_\_\_\_\_

Look at this pie chart. How is it organised? What does it tell you about energy?  
 What renewable energy sources can you think of?

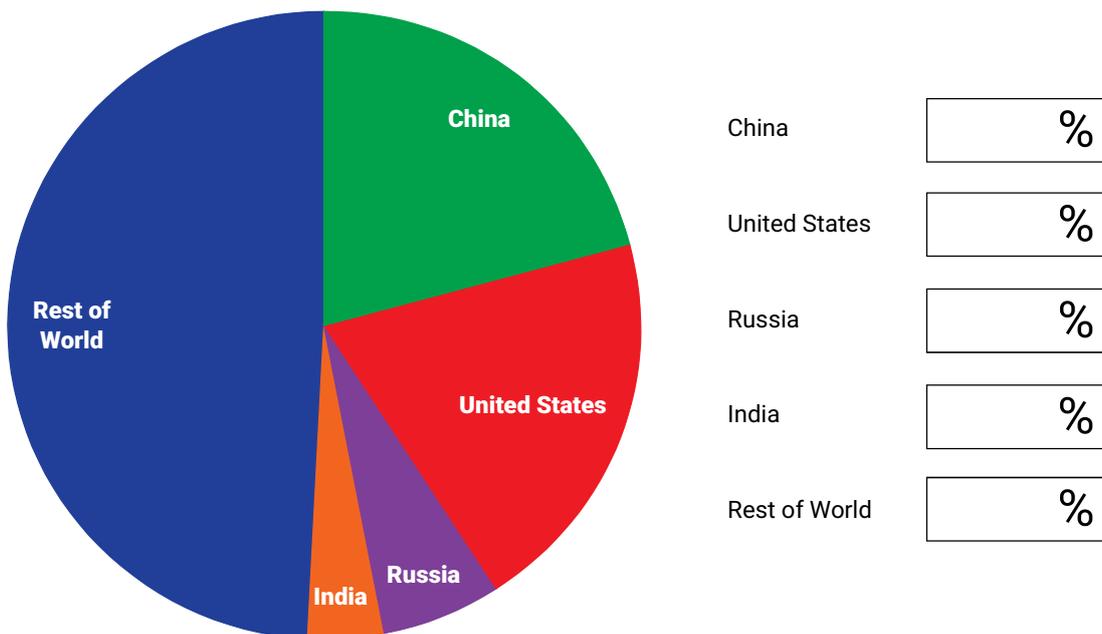
**UK Energy Mix in 2007**



Source: [www.thegreenage.co.uk/energy-industry-key-facts-figures-2013](http://www.thegreenage.co.uk/energy-industry-key-facts-figures-2013)

**World Carbon Dioxide Gas Emissions from Fossil Fuels in 2006**

What does the pie chart below tell you about energy?  
 Estimate the percentage for each segment.

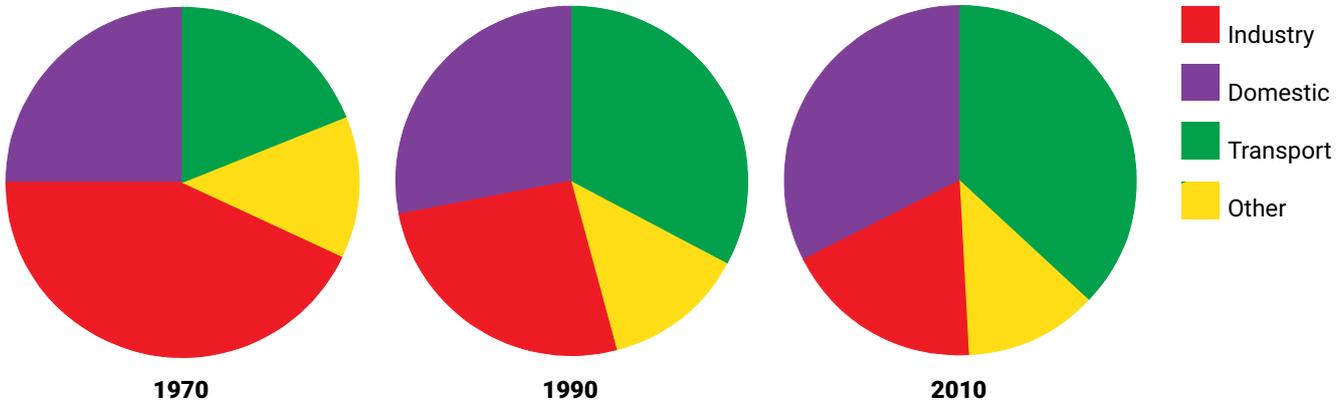


Source: [https://alumni.stanford.edu/get/page/magazine/article/?article\\_id=29907](https://alumni.stanford.edu/get/page/magazine/article/?article_id=29907)

# Exploring Pie Charts

## UK Energy Consumption by Sector

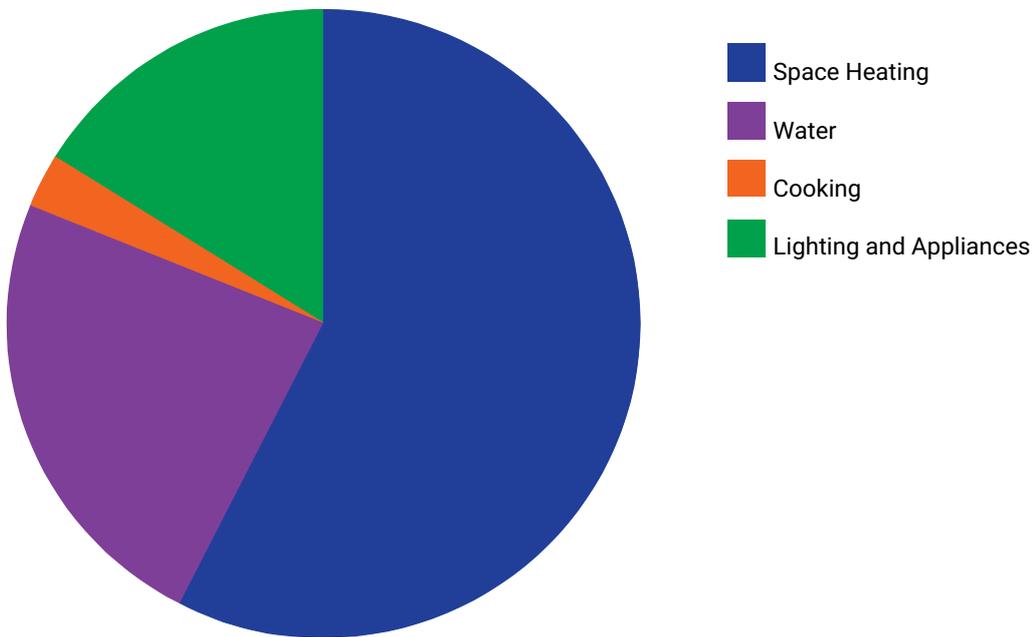
Estimate the percentage for each segment and write it inside the pie charts below.  
What do these charts tell you about the changing use of energy?



Source: [www.evoenergy.co.uk/uk-energy-guide/](http://www.evoenergy.co.uk/uk-energy-guide/)

## Percentage Domestic Energy Consumption by End Use in 2008

Estimate the percentage for each segment and write it inside this pie chart as a decimal.  
What does this pie chart tell you about how we use energy in our homes?



Source: [kate@mygreeninvestments](mailto:kate@mygreeninvestments)

I understand that per cent relates to 'number of parts per hundred'.

I know how to write percentages as a decimal.

I also know that \_\_\_\_\_

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# My Home Energy Audit

Name \_\_\_\_\_ Date \_\_\_\_\_

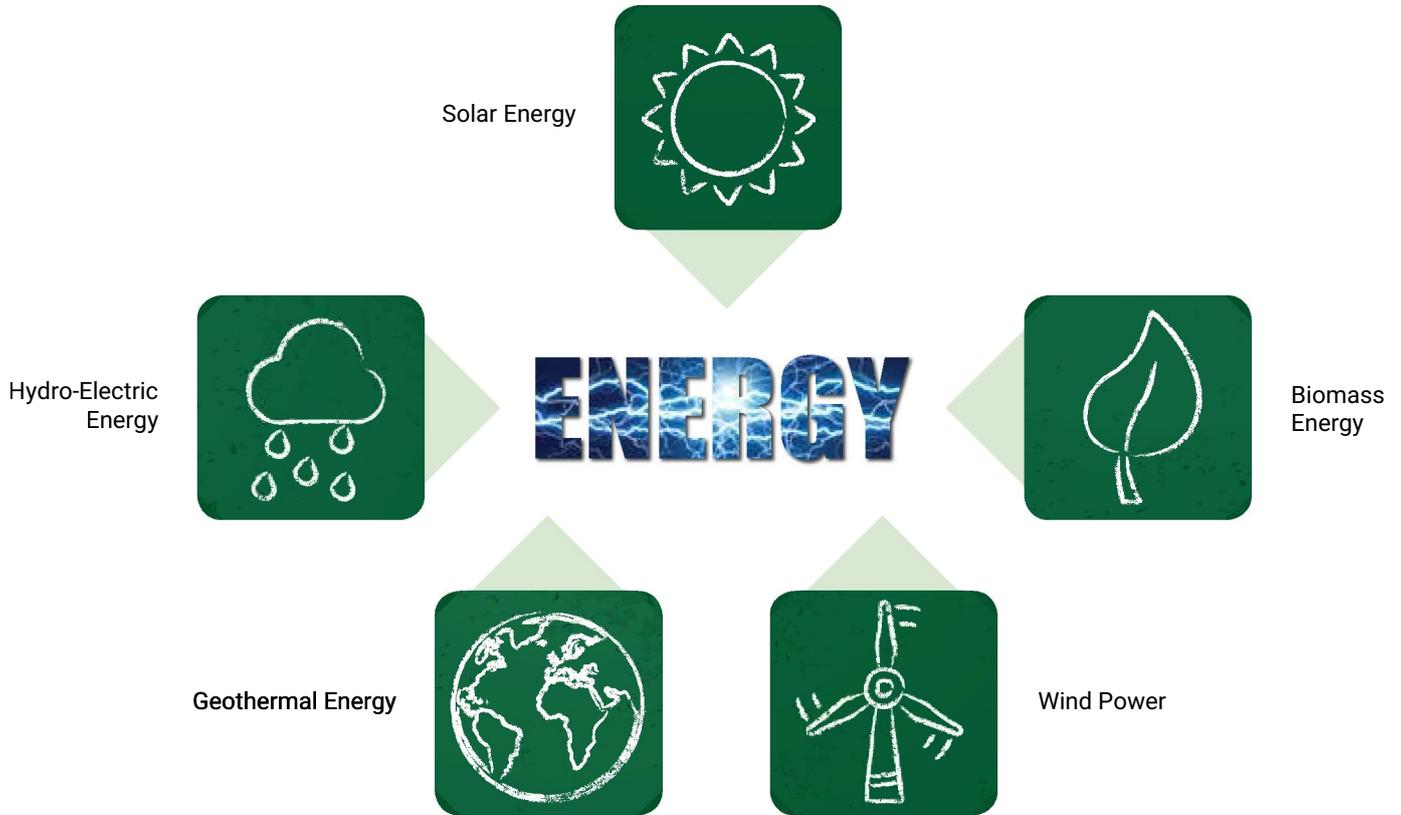
Time of Audit \_\_\_\_\_

Room	How many lights are there? Can you see what kind of lights they are? If so, draw the bulb.	List the appliances in this room. If the appliance is actually on or in use when you conduct this audit, put a circle around the word.	How many radiators?
Kitchen			
Lounge			
Bedroom			
Bedroom			
Bathroom			
Other Room			
Other Room			



# Endless Energy?

## Renewable Energy



## Non-Renewable Energy

