

A Day Full of Energy

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Age group

4 - 7 years old

Curriculum focus

Science

Learning objectives

Students will:

- ▣ Become familiar with the idea that energy is all around us
- ▣ Understand that some things produce light and some produce sound
- ▣ Know that many objects use electricity and that this is a type of energy
- ▣ Understand that devices like phones use many types of energy at the same time

Time needed

45 – 60 mins

About the activity

This session introduces the concept of energy, showing that it is all around us and part of our daily lives. It focuses on light, sound and electricity to support the curriculum.



What you will need

- ▣ Mobile phone (charged) and charger
- ▣ A set of symbol cards
- ▣ Large Venn diagram sheets (1 copy per table/group)
- ▣ Sets of object cards (10 sets)
- ▣ Paper – plain white
- ▣ **Blu tack** (reusable adhesive tack)

Items that produce or use different types of energy. For example:

- ▣ Wind-up toy car
- ▣ Dry pasta in a jar
- ▣ Small plastic horn
- ▣ Candle
- ▣ Wristwatch/small clock
- ▣ Flashlight
- ▣ Doorbell
- ▣ Small book

Timings and structure

Activity	Time (mins)
Activity 1: Starter	5-10
Activity 2: A day full of energy	20
Activity 3: Sort it out	15-20
Activity 4: Draw more/round up	5-10

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Prior Knowledge and Preparation

If starter activity B is chosen, it will be helpful if the children are familiar with electrical components: batteries and bulbs. It may help to take some of these in.

It will be helpful if children are familiar with Venn diagrams and how items can be grouped using them.

Preparation

There are two starter activities to choose from.

You could discuss with the teacher which is most appropriate.

Starter activity A

Check if you have a mobile signal in the classroom. If you do, hide your mobile somewhere in the room where it cannot be seen before the session begins. Children must not see you doing this.

Give the teacher or classroom assistant your number and arrange for them to ring the phone when given the nod at the start of the session.

If there is no signal, set your phone alarm to go off two minutes after the start of the session.

Starter activity B

Agree with the teacher the best way to use the space in the classroom or identify another area to do this activity in.

Activity 3

Ensure that you have all the items listed and that they work!



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Delivering the activities

Activity 1: Starter

Starter activity options (5-10 mins)

Choose one of these two introductory activities, A or B to start the session:

1. Explain who you are and what you do for BP.
2. Explain that the children are going to learn all about energy and how it helps us. Energy is what makes things work and move. We need energy and machines do too.
3. Before starting the chosen activity, start by asking pupils "What gives you energy?" – leading to a discussion on food as fuel.
4. Begin the chosen starter activity:

A. Find my mobile!

Aim: to introduce the theme of energy and science topics through a fun game.

1. Explain that you have hidden your mobile phone somewhere in the classroom and that the children must try to listen carefully to hear where it is and point to where they think it is, staying in their seats.
2. Ask the teacher/TA to call the number. Tell children to close their eyes.
3. Send one child to go and retrieve the phone giving them directions if necessary.
4. Alternatively, if there is no phone signal, explain that an alarm will sound.
5. Show the mobile with the screen lit as an example of a device that uses energy in three forms:
 - Sound
 - Light
 - Electricity

Explain that these are all types of energy. The phone needs electric energy to work (it has batteries), it makes light energy so we can see the screen, and it makes sound energy so we know when there's a call.

B. Action Stations

Aim: to help children learn words associated with energy, and to understand what they mean.

1. Setting up

No resources are needed. Ideally the activity takes place in an open space such as a hall or gym (or possibly outdoors in summer) but if this is not available tell them to use as much space in the classroom as possible and watch out for each other. Pupils will need to be well spread out to start.

2. The activity

This is an action game where each child carries out an appropriate action for seven energy words called out by the teacher:

- ▣ **Light energy** Cover eyes with hand
- ▣ **Sound energy** Cup hands by ears, as if listening (or shout "boo" if the teacher doesn't mind a little bit of noise)
- ▣ **Wind energy** Wave arms like a wind turbine
- ▣ **Battery** Wrap arms around body, feet together, to make a cylinder shape
- ▣ **Bulb** Arms spread out and up with fingers outstretched; legs apart
- ▣ **Electricity** Jump in the air

These will need to be demonstrated by the teacher, then called out (in random order) slowly at first before speeding up to add fun.

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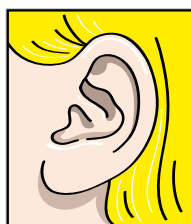
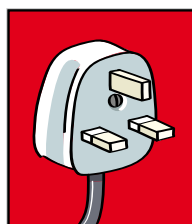
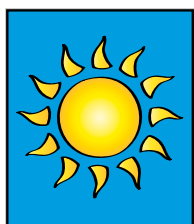
3. Variation and extension

After a short practice, those who perform the wrong action sit out.

Activity 2: A Day Full of Energy (20 mins)

Aim: to help children understand different sources/uses of the three types of energy.

1. Explain to the children that you are going to tell part of a story about Jenny, a six year old girl, and what happens to her one morning. She meets lots of energy – she comes across sounds, light and electricity.
2. Give out the symbol cards so that each child has a set of three: for light, electricity, and sound.



3. Tell the children to hold up the sun card each time that Jenny meets some light energy in the story. They need to hold up the plug card when she comes across electricity, and the ear card when she hears a sound. Sometimes, they might have to hold up two cards at once or even three – show the mobile phone and remind them that this uses all three kinds of energy.
4. Read the story, confirming each type of energy as it is encountered (**S** = sound, **L** = light, **E** = electricity):

Story: Jenny's Day

Jenny lifted her head off the pillow, opened her eyes and let out a loud yawn [S]. It was Monday morning and she had to get ready for school. It was dark in her bedroom so she opened the curtains to let in the sun [L]. Outside she could hear the birds singing [S]. Downstairs she heard mom calling.

'Are you up yet, Jenny?' [S]

'Yes, I'm going to have a shower,' said Jenny. [S]

Jenny walked to the bathroom and switched on the light [L, E]. The shower was noisy [S] but it was nice and warm and it helped wake her up properly. When she was dry, Jenny got dressed and went downstairs.

In the kitchen, mom had the radio on [S, E]. The microwave was going too [S, E, L]. Jenny filled a bowl with cereal then opened the fridge [E, L] to find some milk. She crunched her cornflakes loudly [S] and drank some juice. Then the phone rang [S, E]. Mom answered it [S] then told Jenny it was nearly time to go to school [S].

After brushing her teeth [S], Jenny got into the car, closing the door with a bang [S]. The sun was shining brightly [L]. Mom switched on the car engine and it came to life [E, S]. They drove down the road then came to the traffic lights [L, E]. A noisy ambulance went by [S, L, E]. But soon they arrived at school.

5. The story stops here. Ask:

- ▣ What sounds Jenny might come across at school
- ▣ What light Jenny might come across at school
- ▣ What electrical things Jenny might come across at school

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6. Stop there but suggest that children might finish the story later and say what Jenny does/uses/sees/hears when she gets home.

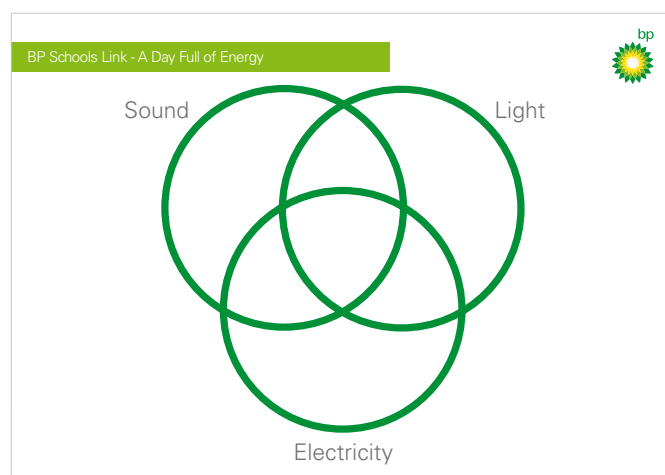
Activity 3: Sort it out (15-20 mins)

Aim: to reinforce understanding of the three types of energy.

1. First, help the children understand that objects can use/produce more than one type of energy. In the story, Jenny's mom had the radio on – radios make sound but they use electricity as well. Show the following objects using the PPT and ask if they involve sound, light, electricity or a mix.
 1. Trumpet (sound)
 2. Desk lamp
 3. Star
 4. Mobile (all three)
 5. Piece of paper on desk (none)
2. Explain that electrical items usually have either a battery (show the torch battery) or a plug (show a mobile charger).
3. Explain that the children are now going to work in groups to sort out some objects. The objects are everyday things which use energy: light, sound and electricity (show a few sample objects).



Using removable adhesive, put a copy of the A2 Venn diagram on the board (or the floor if all can see) to demonstrate how the sorting activity works. Hold up the flashlight and ask what kind of energy it uses – light, sound or electricity. Show where it would go on the chart. Do this for two or three other objects.



4. Give out the Venn diagram sheets and box of items, one per group.
 - Small horn – sound only
 - Candle – light only
 - Wristwatch/small clock with hands – electricity only
 - Flashlight – light and electricity
 - Doorbell – sound and electricity
 - Dry pasta in a jar - sound only
 - Wind-up toy car – sound only
 - Mobile – all three
 - Book – none
5. Go through the answers, asking one group at a time where they put a certain item and why.

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Activity 4: Find it (10-15 minutes, for teachers to use after the session)

A set of color posters is provided:
a kitchen, a busy street and a café.

- Children name all the things that make sounds in each picture
- They then name all the things that give off light
- Finally, they name all the things that use electricity

Alternatively, the teacher can point to items in the scenes and ask the children what type of energy it is using or making.



Follow up activity: Draw more/round up (5-10 mins)

Aim: to help children think of other things which use energy.

1. Each child will need a piece of paper and a pencil.
2. Ask the children to draw three things in their home: one that makes sound, one that makes light and one that uses electricity.
3. If they finish quickly they can draw some more: two of each.
4. Finish off the session as follows:
 - Thank the children for their hard work and say that you hope they have enjoyed the activities.
 - Remind them that energy is all around and it's very useful. Light is energy, sound is energy and so is electricity.

