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Volunteers should be aware of the following pieces of information before delivering these lessons:

All lessons in this suite are designed to be delivered in a normal classroom setting, although facilitators could adapt them for use in an assembly.

Each lesson plan contains information about how it can be adapted to suit pupils with SEND provision.

Each lesson plan builds one essential skill step from the Skills Builder Framework for essential skills. This Framework provides a common language for defining and developing eight essential skills. You can explore the Framework <u>here</u>.

Detailed lesson plans, slide decks, worksheets and knowledge organisers for each lesson can all be found on the STEM at SSE website.

Please share your pupils' work on social media, tagging @SSE on Twitter or @SSEplc on Instagram and using the #STEMatSSE tag.



LEARNING FROM THE PAST

Lesson 1

PROBLEMS AND SOLUTIONS



Introduce yourself as the educator.



Briefly introduce yourself and explain who SSE are and what they do.

Do now:

- What is this a picture of?
 What can you see?
 How is it similar to your home?
- How is different to your home?



sse

Do Now (5 mins)

Show an image from the past showing someone's home.

Ask the following questions:

- What is this a picture of?
- What can you see?
- How is it similar to your home?
- How is different to your home?

Children to discuss what they can see in the image of the kitchen with their partner, using their existing knowledge of what would be found in a modern-day kitchen to support their discussion.

KEY WORDS







Sse

Explain key words used in the lesson:

- Problem
- Solution
- The past
- The present



Introduction: a home from the past



What is the past?

Can you think of things that have happened in the past?

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Introduction (10 mins)

Using the image, say that this is a picture from the past. The past is a time that has gone by and has already happened. The past could be this morning or it could be a time before any of us were born.

Ask the children to turn to a partner and prompt with these questions:

- Can you tell your partner some things you know have happened in the past?
- Was this a long time ago?

See if the children are able to use time-related vocabulary to support their explanations.

Take ideas from the children and discuss any misconceptions. Explain that today, we are going to be thinking about the past from the time that our parents and even our grandparents might have been very young.

Introduction: let's be certain we know what we mean with these...







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Explain that there are many objects and devices that we see every day which solve a problem. Examine the key vocabulary with the children, reading one word at a time and asking them to talk to their partner about its meaning.

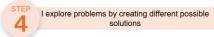
Children to talk to partner and then share with facilitator what they think the following words mean:

- Problem
- Solution
- The past
- The present

Take ideas from the children and clarify the meanings.

What does Problem Solving mean?



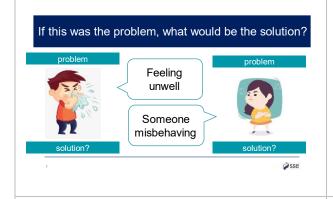


sse

Reveal definition for Problem Solving: the ability to find a solution to a situation of challenge Explain that throughout the lesson, children will be working on Step 4 of Problem Solving: exploring problems by creating different possible solutions. Optional: Describe when you have demonstrated this skill step in your current role.

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Reinforce the vocabulary through using the two very familiar examples. Explain to the children what the problem is and then ask them to give an idea for what the solution might be.

Children to share their ideas for what the solution to the problem could be when:

- They are feeling poorly
- They see someone doing something wrong

Our BIG question

Why are new solutions found to the same problems?

Discuss the 'big question' and see if the children have initial thoughts on this. An example could be used that is familiar to them such as the way we travel to school.

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problem solution

why is this a helpful device?

Show image of a problem that people face in their homes – wet clothes.

Record with the children (you could scribe these on a board or flipchart, or on a copy of the worksheet that children will be filling out to help them understand their independent task).

- 1) What is the problem? (wet clothes)
- 2) What is the solution? (use a tumble dryer)
- 3) Why is this a helpful device? (it is quick and takes up little space)

Pupil practise

LEARNING FROM THE PAST

Problems and solution

Why is this a helpful device?

Pupil Practice (20 mins)

Children given a worksheet with structure shown on it for recording their ideas.

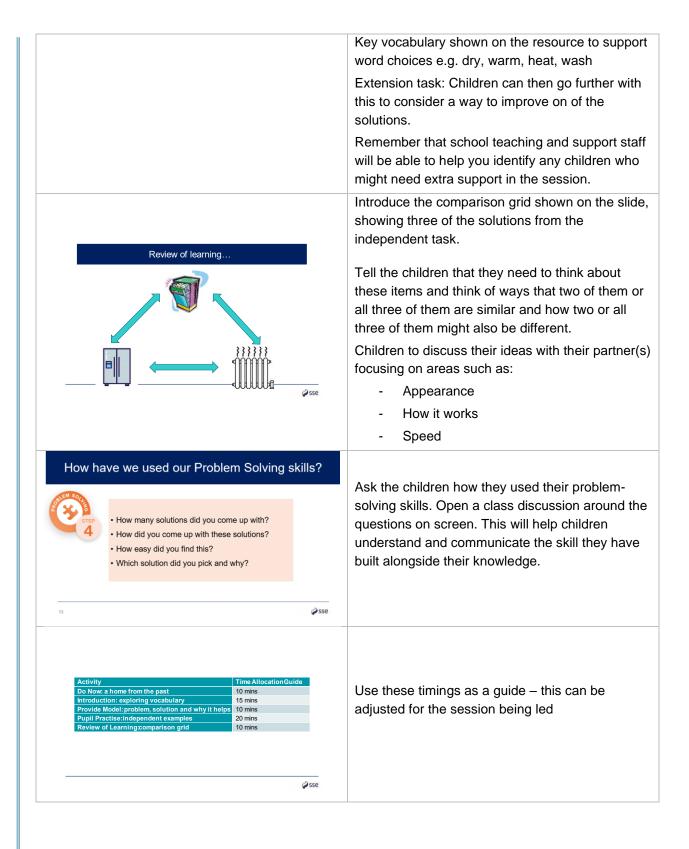
Children to cut out their chosen problem and then add their solution to the problem, referring to the object / device found in the home.

Finally, children will add their idea for why this device is a good solution to the problem.

In the resources, you'll find:

- a separate sheet including a number of problems commonly found in the home.
- additional resource for children who need to also see the solution.









Please provide feedback via QR link – encourage children to submit examples of pupil work to social media.

A more detailed lesson plan can be found in the SSE 'Power Changers' Primary booklet.



ORDERING SOLUTIONS

Lesson 2



Introduce yourself as the educator



Briefly introduce yourself and explain who SSE are and what they do.



Do Now (5 mins)

Start off with a quickfire task showing a device from the previous session. Children to use the sentence starters to explain what it is, what problem it solves and why it is a good solution.

Model this with the first one for the children: 'The car wash: **this device is used for** cleaning people's cars and other vehicles.'

Continue the activity using the next two slides. Children should work with their partner.

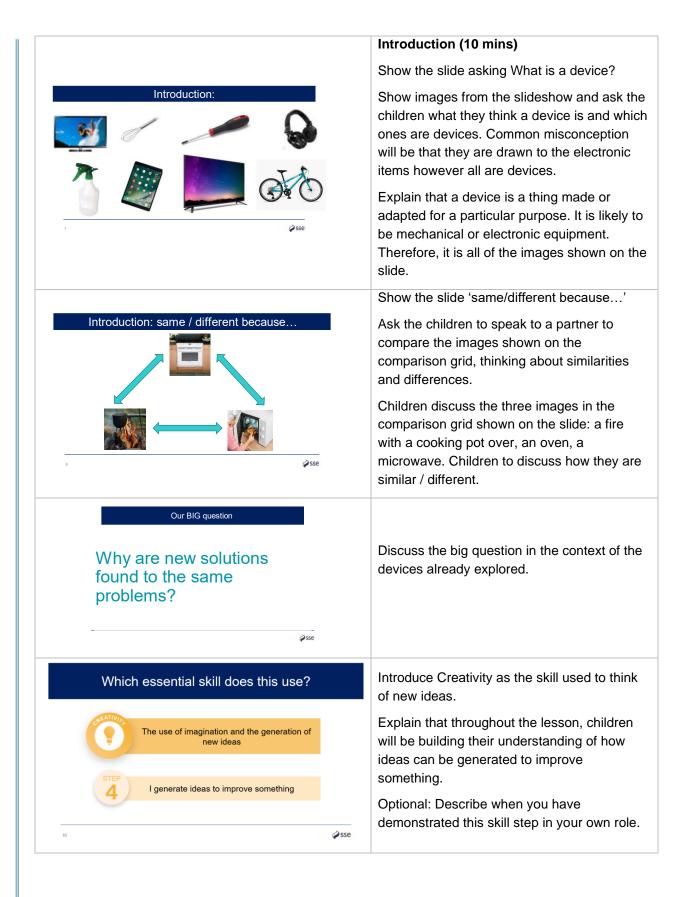
KEY WORDS



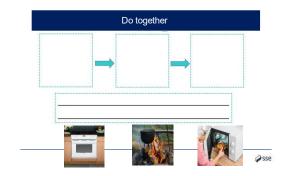
Explain key words used in the lesson

- Safer
- Cleaner
- Efficient









Provide model (15 mins)

Show the three images of ways of cooking. Explain that these were used in the past and some are used in the present. Which of these was used first / earliest? How do we know?

Click on the screen for it to move into the correct place on the structure. Ask the children what the problem would be if we still cooked like this.

Children to suggest why the pot over the fire would be difficult to use now. Facilitator to click the slide and through discussion, introduce the idea that it is cleaner, safer and more efficient.

Repeat for the traditional oven and the microwave. With each one of the first two, identify the problem with them and why, therefore, the next one was developed.

Pupil practice (20 mins)

Children will choose a selection of three images of items that are familiar to them. All of them are items that eventually rely on electricity. They will cut them out and place them onto the structure.

Children to stick the three items into the correct order on their sheets and then explain what has changed in the different solutions using the key words cleaner, safer and more efficient.

Repeat with a second and possibly third example if there is time.

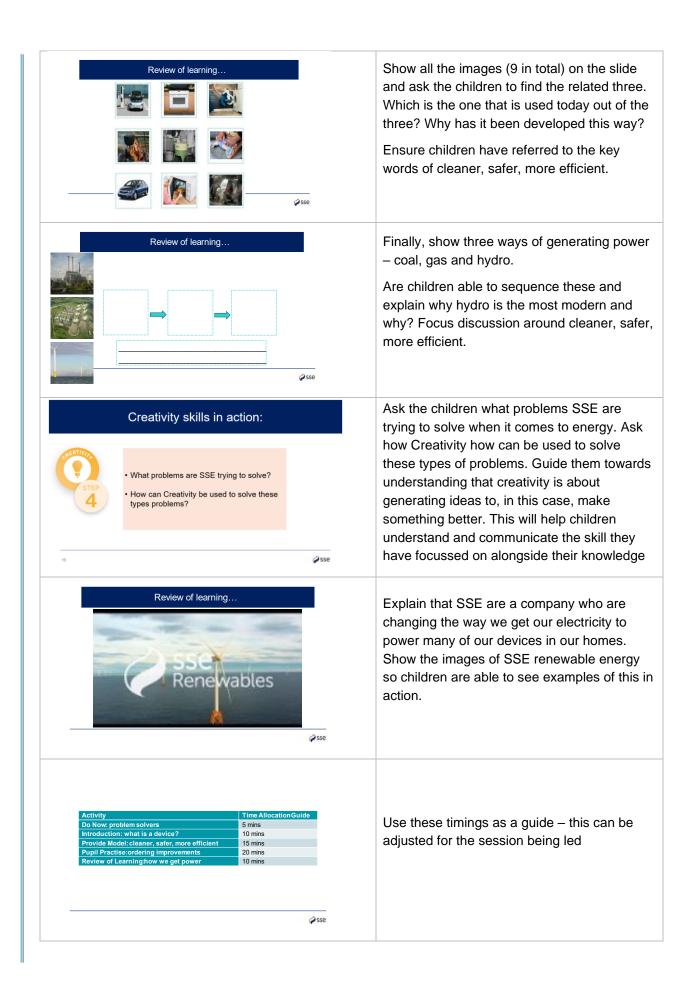
Children to use key vocabulary shown on the sheet to support with this.

Extension question/task: can you design your own using an example that is not in the kitchen? Children can draw this using a blank piece of paper or blank format.

Remember that school teaching and support staff will be able to help you identify any children who might need extra support in the session.











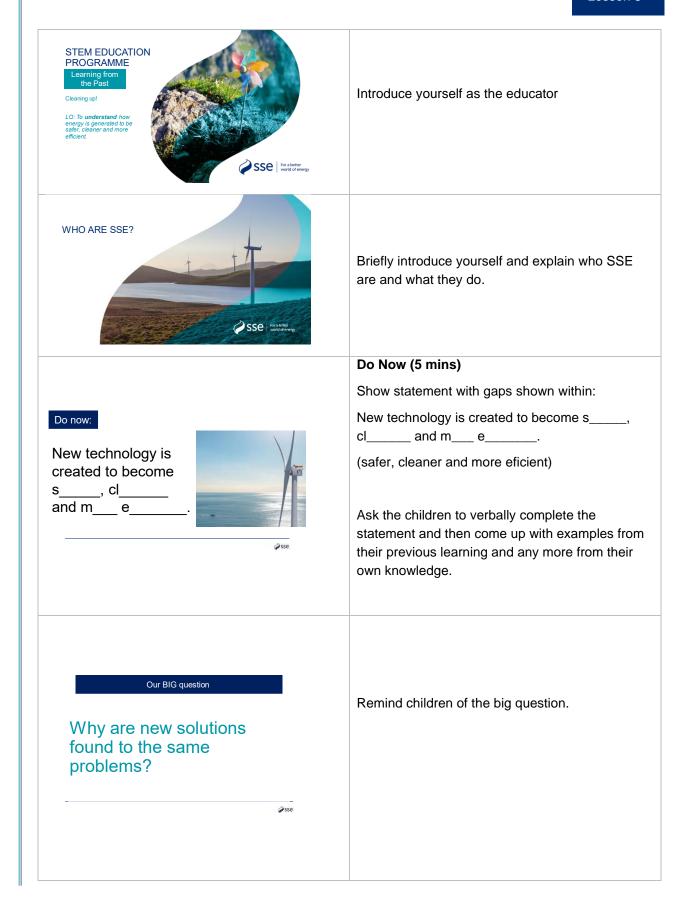
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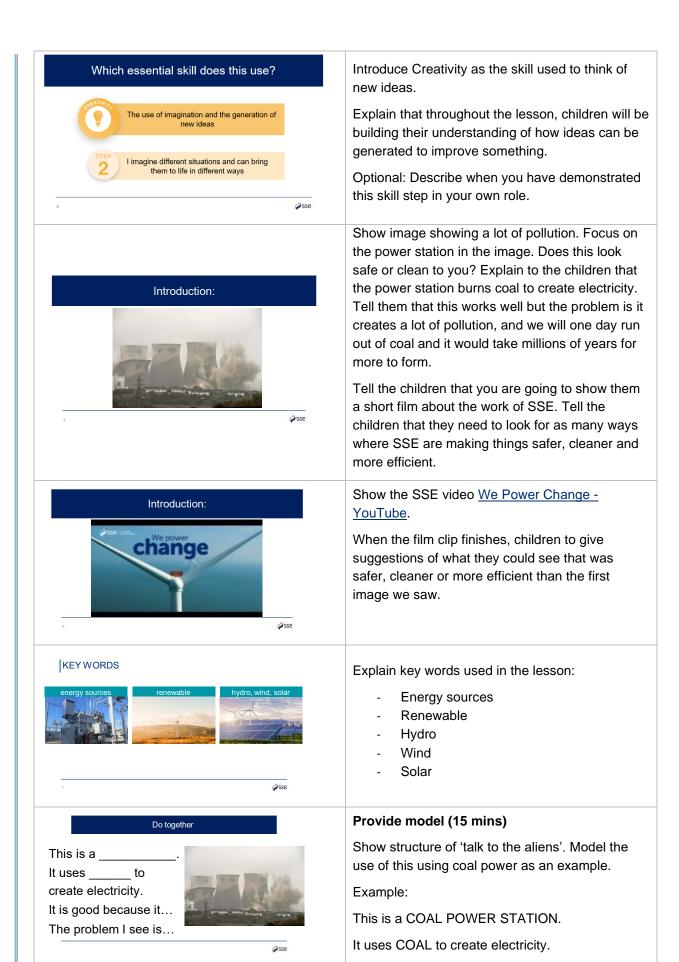


CLEANING UP!

Lesson 3









	WE NEED
	The problem I see isIT CAUSES A LOT OF AIR POLLUTION.
	Through questioning, ask the children to explain why they think it isn't safe, linking this where you can to the planet, animals, humans etc. Repeat with clean and efficient.
Do together	Show structure of 'talk to the aliens'. Repeat talk to the aliens using wind turbines as an example and children to complete this with their partners.
This is a to create electricity. It is good because it The problem I see is	It uses to create electricity.
	It is good because it
	The problem I see is
	At this stage, it is important the children consider questions like 'what if there was no wind?'
	Show structure of 'talk to the aliens'. Now with a focus on hydroelectricity: children to suggest
This is a to create electricity. It is good because it The problem I see is	ideas to complete the sentences.
	This is a
	It uses to create electricity.
	It is good because it
	The problem I see is
	Tell the children that all ways of creating power have limitations however using renewable energy is far more efficient as we will not run out of these energy sources.
	Then look at a number of images from the previous lessons and ask the children to consider what the future might look like, drawing upon the images that are most relevant.
Do together / pupil practise	Show the crystal ball outline on the slide. Explain to the children that they are going to draw what they would love the future to look like. Ask them to consider what would go in their crystal ball – explain that they can show it in any way they wish.
	Click to reveal the prompts shown and ask the children to think about them. The facilitator may wish to get the children to close their eyes and



imagine it or to share each of their ideas with a partner.

Pupil practise (20 mins)

Distribute the sheets and ask children to record their ideas onto their crystal ball. Tell them that they will present their ideas to others at the end of the session.

Children to complete their 'crystal ball of hope' for the future. Within it, they need to draw what they want the future to look like to make sure it is clean, safe and efficient.

Optional: Underneath this, children to write about what they have drawn. This may be dependent on time available and also the writing ability of the child. Children could be encouraged to go further with this, explaining why they have made their choices.

Remember that school teaching and support staff will be able to help you identify any children who might need extra support in the session.

Review of learning... I like your idea because... Have you thought about...

Review of learning (10 mins)

Ask children to present their work to their partner. Tell them to focus on what they have in their picture and why they have chosen this.

Children present their work to a partner, small group or the full class.

Children then to give the other child verbal feedback using some of the prompts shown on the slide:

I like your idea because...

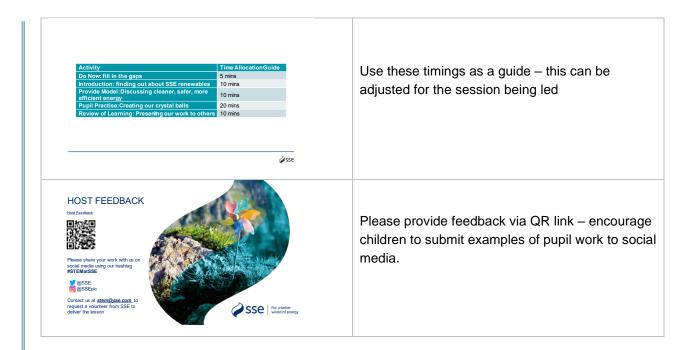
I thought it was an intelligent idea because...

Have you thought about...



Ask the children how they used their Creativity skills. Open a class discussion around the questions on screen. This will help children understand and communicate the skill they have built alongside their knowledge





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