

Fun/STEM/HE

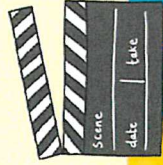
Activity

Six



Building Challenge!

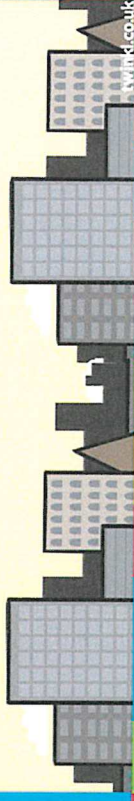
Recreate a scene from your
favourite film...



[twinkl.co.uk](https://www.twinkl.co.uk)

Building Challenge!

Build a city scene using as many
building bricks as you can.



[twinkl.co.uk](https://www.twinkl.co.uk)

Key Questions:

What do children enjoy playing at a playground?

Do you need a lot of small items or fewer, larger pieces of equipment?

How will you construct each part of your playground?

Should you include quiet spaces?

What age groups will your design be for?

How will you strengthen each structure?

Have you considered all abilities?

Is size important?

What is the best material to use?



STEM Sound Amplifiers Activity: Engineering Design Process

Sound volume can be increased for various purposes. In fact, scientists and inventors have been working for over a century to create devices to amplify sound.

Remember the science: to amplify sound means to make the sound waves taller. Sound waves travel better through some materials than others. Sound cannot travel through a vacuum. The volume of the sound we hear can be increased by funnelling it towards our ears – our outer ears already do this a bit! A hollow 'box' made of hard material can also amplify sound. A small sound vibrates through the hard material and is projected away from the source.

When designing items, engineers use the Engineering Design Process. The steps are:

- ask a question about what you can create;
- imagine what you can create;
- plan your creation;
- create it;
- improve your creation.

You have been hired by SoundAmp to create a device that will amplify the sound on a cell phone. How can you engineer a way to make the phone volume louder? You must use these items:

- **ceramic cup** – should the cup go inside/underneath/on top?
- **cardboard tube** – where does the sound come from on the phone? How is the tube like your ear?
- **paper** – can you fold the paper? What shape do you think would be the best? How does your ear help you to hear?
- **ceramic bowl** – would you put the phone inside or underneath? How is the shape of a bowl like your ear?
- **drinking glass** – how is the shape of a glass like the shape of the toilet roll tube? How might this help the sound?
- **paper cup** – is this a similar shape to the glass? Do you think it will work better than the glass?

You will use the Engineering Design Process to help with your invention. Follow the steps below:

Imagine and Plan: Imagine what you could use to amplify the sound on your phone. Plan how you will amplify the sound. Use words and pictures to record your plan below for each item.

ceramic cup	cardboard tube	paper
ceramic bowl	drinking glass	paper cup

Test your plans: Record your results in the table below.

Item Being Tested	Is the Sound Louder or Quieter ?	Is the Sound Quality Better or Worse ?
ceramic cup		
cardboard tube		
paper		
ceramic bowl		
drinking glass		
paper cup		

Evaluate: Every experiment has successes and problems. What problems did you face in this experiment? How will you overcome them next time? What went really well?

Some keywords you could use: louder, quieter, sound wave, amplify, height, vibrate, funnel, material.

A problem with our experiment was...

I think this was a problem because...

The things that went really well were...

To improve next time I will...

Conclusion: What were the outcomes of your experiment? Which device worked the best? Why do you think this is, based on your knowledge of sound waves?

Some keywords you could use: louder, quieter, sound wave, amplify, height, vibrate, funnel, material.

A problem with our experiment was...

I think this was a problem because...

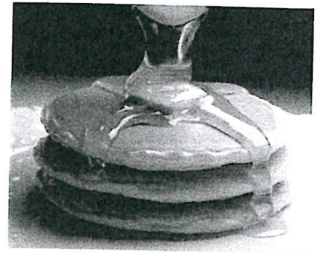
The object that amplified the sound the best was...

I think this is because...

The object that didn't work very well was...

I think this is because...

Pancakes



Ingredients

200g Soda Bread Flour
75g Caster Sugar
220mls buttermilk
1 egg

Cookeen
(to grease frying pan)

Equipment

Mixing bowl
Wooden Spoon
Fish slice
Frying pan
white bowl
Measuring jug
2 Small plates
Knife
Fork
Spatula
Sieve
Pot Stand/Tablespoon

Method:

1. Get out equipment
 2. Weigh out all ingredients.
 3. Sieve the flour into mixing bowl
 4. Add caster sugar to mixing bowl
 5. Measure buttermilk in measuring jug.
 6. Crack egg into the milk. Whisk with a fork.
 7. Pour buttermilk/egg gradually into mixing bowl and stir the mixture quickly.
 8. Preheat electric frying pan and grease well with melted margarine.
 10. Pour a little mixture onto frying pan and leave to cook on one side.
 11. When bubbles appear on one side and pop turn the pancakes over.
 12. When pancakes are golden brown on both sides, take off.
 13. Serve with butter, sugar and lemon
- Other toppings: maple syrup, jam.