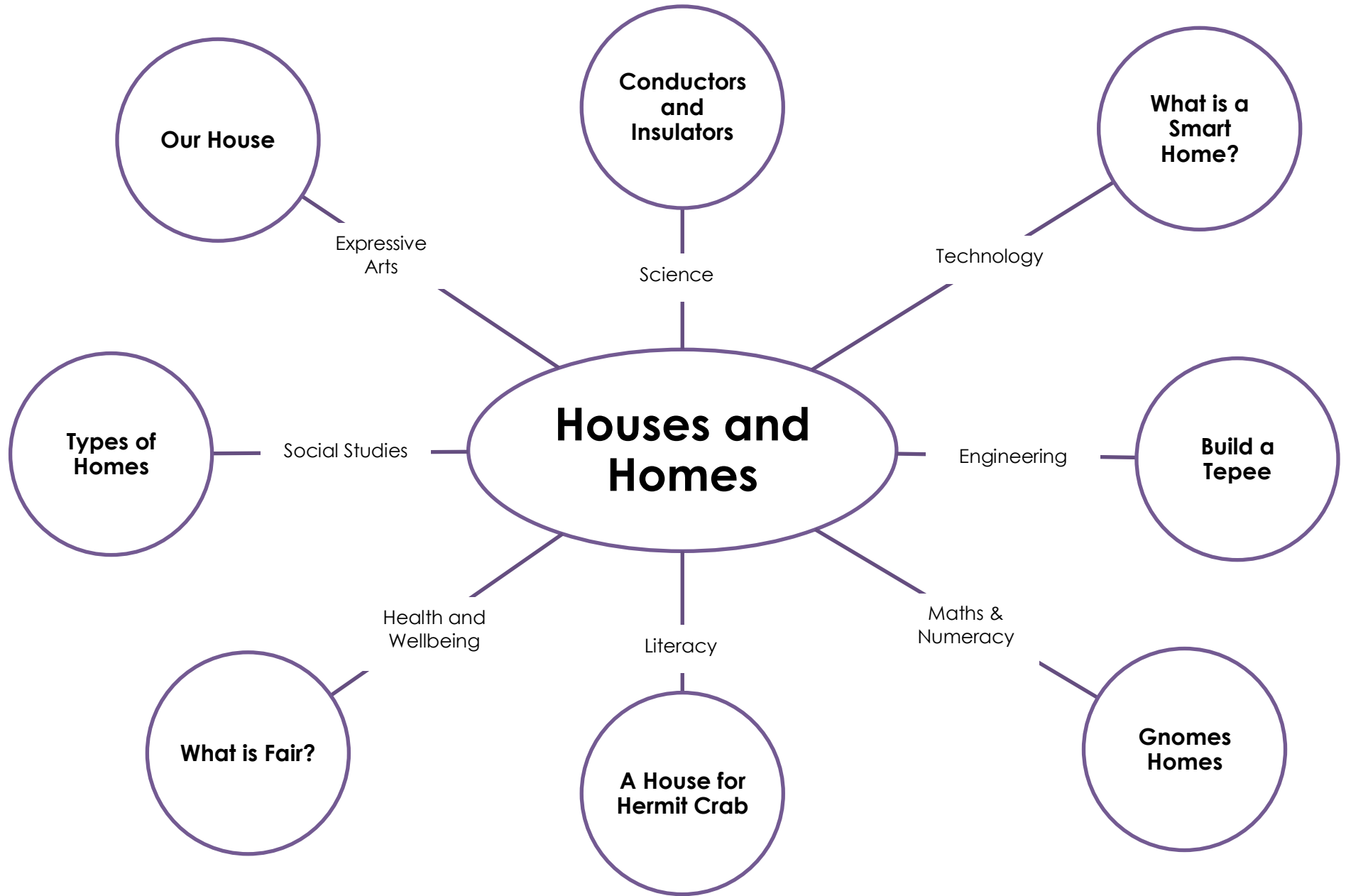




Learning from Home



Science Challenge



Conductors and Insulators

We use electricity as a form of energy to power gadgets in our homes. Some items need to be plugged in to get them to work and others use stored energy in the form of a battery. (Or batteries)

Learn more about conductors and insulators here:
<https://www.youtube.com/watch?v=a8zryOJOvcc>

Use the information learned from the video to sort the items into **conductor** or **insulator**.

Task: Complete the table below by putting the objects into the correct column.

Conductor	Insulator

pencil	10p coin	2p coin
piece of wood	toy car	ruler
plastic spoon	metal spoon	piece of paper
key	tin foil	piece of card
drawing pin	piece of string	nail

The Science: When gadgets are plugged in, or batteries switched on, an electrical circuit is completed, powering the device with energy and allowing it to work. When electric charge moves, we call it an electric current. Current is a flow of charge (or electrons) around a circuit.

Materials that allow current through them are called electrical **conductors**.
 Materials that do not allow current through them are called electrical **insulators**.

Electricity can be incredibly dangerous so it is important that we can control its flow. That is why plugs for example, have a plastic cover. Plastic is an electrical insulator, so it prevents the electricity from travelling into us and giving us a shock.

Note: Electricity can be extremely dangerous – never tamper with electrical devices!

Extension: If you have the **Buzz Off** or **Operation** game (or a variation of them) at home, you can investigate circuits further. Note, that if the metal loop or tweezer tips touch plastic or wood, there will be no response as these materials are both insulators. When they come into contact with metal however, the buzzer or light will activate. This is because metal is a conductor, the circuit is now complete, and electricity is flowing.

Activity adapted from TES

Technology Challenge



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What is a Smart Home?

Smart homes use technology and automation (things happening automatically) allowing homeowners to monitor and control energy use in the home. This can include lighting, heating, hot water, electricity and security. Your home may already be smarter than you think! Smart homes are constantly evolving as technology advances, you may already have technology that makes your home smart.


Task 1: Talk to an adult at home about technology you might already be using in your home.

Smart speakers: These include Alexa, Siri, Google Home and many more. These tiny virtual assistants can tell us what the weather is going to be and play music, but did you know if you have the correct equipment, they can also turn on and off lights and close blinds?



Household goods: Even everyday household items can be smart. You can brew coffee from your phone, access the internet from our TV's and clean the house with app-controlled robot vacuum cleaners!



 **Smart blinds and curtains:** Closing blinds and curtains can help to keep heat in the home, stopping heat escaping through windows. The ability to control them from anywhere can also make your home more secure.

Smart lighting: Can be turned on and off remotely, be put on timers and sensors and even change colour. This avoids having lights on for longer than you need and can help to keep your home secure.



Security: Devices such as lights, cameras, gates and alarms can all be virtually monitored and controlled, allowing us to keep our homes secure, even when we are not there.

Heating and gas: Many smart home utilities allow you to turn the heating and gas on/off and control the temperature from anywhere. Turning these off when you're not home can save hundreds of pounds each year!



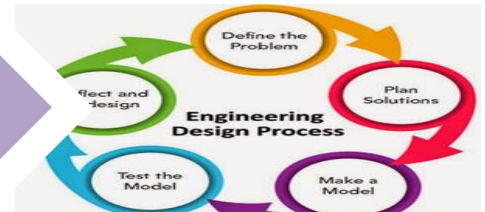
Task 2: Talk to an adult about other ways people may be able to reduce these costs? (Think about renewables!)

Smart Meters: What is a smart meter? A smart meter is a two-way digital communication device located in homes and businesses that measures the amount of electricity and gas used. Energy companies provide an in-home display (IHD), a small energy monitor that displays energy readings, this is different from the actual smart meter itself, just acting as the display. The actual smart meter looks a lot like standard gas and electricity meters that you may already have.



Information and images from: www.cdi.com/

Engineering Challenge



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Build a Tepee

Adult Supervision May Be Required

According to Encyclopedia Britannica (www.britannica.com/) a tepee is a tent built in a cone shape, most common to the North American Plains Indians. The Plains peoples were nomads moving from place to place and the tepee was an ideal dwelling, as it could be easily disassembled and transported.



The tepee was generally made by stretching a cover sewn of dressed buffalo skins over a framework of wooden poles; in some cases, reed mats, canvas, sheets of bark, or other materials could be used for the covering.

Challenge: Build a model tepee for a doll or toy to shelter inside.

Plan it: Write down or sketch some ideas as to how you will construct the tepee.

Build it: Suggested materials include twigs, lollypop sticks, straws, leftover / scrap material from old clothes, newspaper, wooden pegs... *Remember to ask an adult for help if using scissors!*

Test it: Does your toy fit comfortably inside the tepee? Does it have a flap up one side so your toy can get in and out easily?

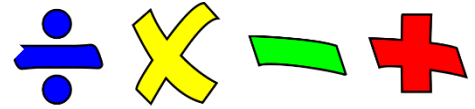
Improve it: Could you add any special features or decorate it to make the tepee even better? Perhaps you could look up Native American art ideas and use them to enhance the tepee's appearance?

Can you take a photograph of your finished tepee with your toy in it? If you can, paste the photo onto a **Word** document and type up a short explanation of what it is and how you built the tepee. Remember to give your document a name before saving it. Ask a grown up for help if you need to.



Images from www.clipart-library.com

Maths & Numeracy Challenge



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Gnomes Homes

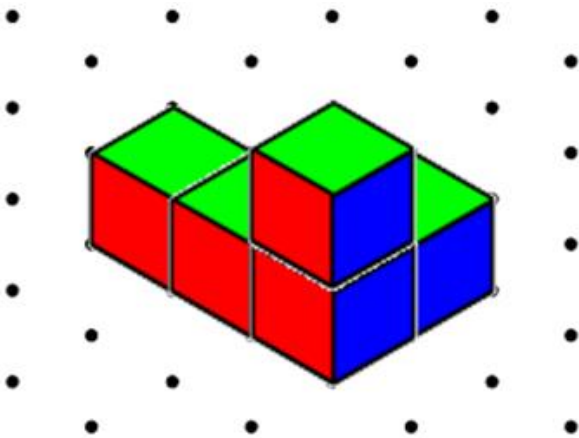
Today's challenge is to make 8 different houses out of five cubes and then to calculate the cost of each.

Task 1: A gnome's home is made out of 5 cubes/bricks. Your task is to design 8 different houses.

- It costs £10 for each cube/brick on the first storey.
- It costs £20 for each cube/brick on the second storey.
- It costs £30 for each cube/brick on the third storey.
- It costs £40 for each cube/brick on the fourth storey.
- It costs £50 for each cube/brick on the fifth storey.

Task 2: Find the cost of each house.

Here's an example:



Four cubes on first storey
 $4 \times £10 = £40$

One cube on the second storey
 $1 \times £20 = £20$

Total cost for the house
 $£40 + £20 = £60$

If you have cubes/lego bricks or duplo at home, you may wish to use them to help you visualise the challenge.



If you have isometric graph paper at home, you might want to use that. You can download some here for free as a PDF: https://www.printablepaper.net/preview/IsometricDots-half_inch

Activity and image from TES

Literacy Challenge



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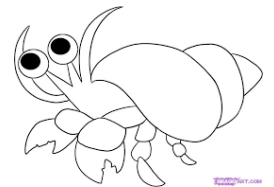
A House for Hermit Crab

All living things need shelter – somewhere to live. People live in a variety of different types of homes and so do animals. Hermit crabs live in shells and as they grow bigger, they have to move out of their home to find a bigger one.

Task 1: Click here to watch '**A House for Hermit Crab**' by Eric Carle:
<https://www.youtube.com/watch?v=ICV7xTqbUE>

Task 2: Answer the flowing questions based on the story and remember to write in proper sentences, starting with a capital letter and ending in a full stop.

1. Where is the story set? How do you know?
2. Why does the hermit crab leave his shell?
3. Why is the hermit crab worried about not having a home?
4. Why doesn't the hermit crab like his new home at first?
5. List the sea creatures that come to live with hermit crab in the order that he meets them.



Task 3: The author, Eric Carle, uses adjectives to describe how the different sea creatures respond to the hermit crab:

- A. The sea anemone **whispered**.
- B. The sea star **signalled**.
- C. The coral **creaked**.
- D. The snail **offered**.
- E. The sea urchin **answered**.
- F. The lantern fish **replied**.

Hermit crabs carry their homes on their backs.



Rewrite the sentences replacing the last word (adjective) with a different one. If you have a thesaurus at home, look up the adjectives already used and see what alternatives there might be. (You could also use an online thesaurus but remember to ask an adult for permission first.) <https://www.thesaurus.com/> is a good one. Use a different word for each one!

Images from www.clipart-library.com



Health & Wellbeing Challenge

What is Fair?

Adult Support Required

Watch 'This House is Our House' by Michael Rosen by clicking here:

https://www.youtube.com/watch?v=wf_n6yir9T0



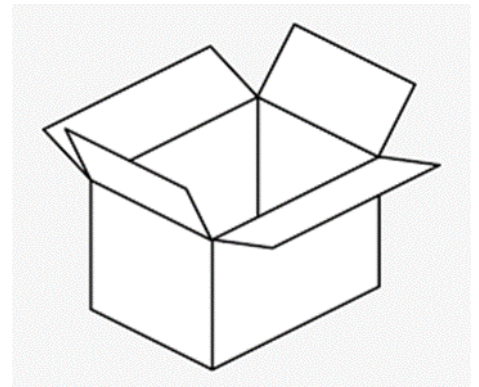
In the story, George is playing in a cardboard 'house' that he has found but he refuses to let any of the other boys or girls play in it with him. Do you think this was fair of George?

George says horrible things as reasons why the others can't play. "This house isn't for girls!", "This house isn't for small people!", "This house isn't for twins!", "This house isn't for people with glasses!", etc. Do you think it is ever fair for a person to be treated differently just because of how they look?

Watch a video of some children talking about what fair and unfair means to them by clicking here: <https://www.bbc.co.uk/teach/school-radio/assemblies-ks1-ks2-what-is-fair/zwxcvwx>

Task: Talk to an adult about these questions:

1. Are there things in your life that aren't fair?
2. Have you ever been treated unfairly by someone else?
3. Why do you think it is important to be treated fairly?
4. Is getting paid less for the same job fair?



Idea adapted from TES

Images from www.clickart-library.com

Social Studies Challenge



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Types of Homes

Across the world, people live in many different types of homes. Some people live in houses made from bricks, others live in tree houses, caravans, tents, mud huts or even igloos to name a few.

Read these descriptions about the most common types of homes in Scotland.

A **bungalow** is one storey high. All the rooms are on the ground floor.

A **detached** house stands all by itself. It is not joined to other houses.

Flats are homes stacked on top of one another in the same building.

High-rise flats are in a tower with many floors.

Semi-detached houses are two houses joined as a pair.

Terraced houses are joined together in a row.



Task 1: Using the information above, label each of the house pictures.



Task 2: Now imagine that you are disabled and use a wheelchair. Which type of house would be most suitable for you? Could any adaptations or modifications be made to the other types of houses to allow you to live there comfortably? Would any type of housing be impossible for you to live in? Talk to an adult about your ideas.



Activity adapted and images from WAYLAND via TES

Expressive Arts Challenge



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Our House

Crosby, Stills, Nash and Young released a song called 'Our House' back in 1970. It was a very popular song at the time and has since been used for TV advertisements.

Today's task: is to listen carefully to the song and choose one part of it to recreate any way you like. (Draw, paint, collage, sculpt etc.)



Listen to Crosby, Stills, Nash, & Young - Our House (Official Video) here:

<https://www.youtube.com/watch?v=aunVlekXjKE>

The lyrics are also written below. You may also get some ideas for your artwork from watching the video which accompanies the song. Why not also try singing along.

Lyrics

I'll light the fire
You place the flowers in the vase
That you bought today



Staring at the fire
For hours and hours while I listen to you
Play your love songs all night long for me
Only for me

Come to me now (Come to me now)
And rest your head for just five minutes
Everything is done

Such a cozy room (Such a cozy room)
The windows are illuminated
By the evening sunshine through them
Fiery gems for you, only for you

Our house is a very, very, very fine house
With two cats in the yard
Life used to be so hard

Now everything is easy 'cause of you
And our,

La-la, la-la-la-la-la
La-la-la-la, la-la-la-la-la
La-la-la-la-la-la-la
La-la-la-la-la-la-la-la
La-la, la-la-la-la-la
La-la-la-la, la-la-la-la-la
La-la-la-la-la-la-la



Our house is a very, very, very fine house
With two cats in the yard
Life used to be so hard
Now everything is easy 'cause of you
And our,

I'll light the fire
While you place the flowers in the vase
That you bought today

Our House lyrics © Nash Notes

Images from www.clipart-library.com