

Maker Challenge!

By designer-maker Emma Carlow



Calling all Little Inventors!

Take the Maker Challenge set by designer-maker Emma Carlow. Have a go at four different activities along the way to get you in the creative mood and to help you build up to designing an ingenious invention.

Make sure to take care with sharp objects and get some adult help where you need it. There are how-to-guides included to help you with your project. Put your own stamp on the inventions and let your creativity out! We can't take a peep at your fantastic inventions, so roll up those sleeves, wiggle those fingers and prepare to invent! 3...2...1...GO!

Emma's invention challenge



Invent something inspired by a Day Dream Generator

Give these four activities a go to help guide you through the challenge!

- 1. Thinking cap on!** Make a list of elements to include in your day dream generator (characters, place, weather etc).
- 2. Investigate!** Look at different types of mobile and design the type you want to make.
- 3. Lets get creative!** Using the 'Mobiles' work sheet, make your mobile day dream generator.
- 4. Dream a little dream.** Hang your mobile and photograph the elements in different combinations generated by the day dream generator. Record your favourite day dream.

INVENTION SHEET.

Create an invention inspired by your mobile day dream generator.



Emma Carlow is a designer-maker from East Sussex, UK

She enjoys making things more than drawing. She loves using cardboard and clay and she often sews things. She makes things, or thinks about making things all the time.

Here are some pictures of her work!



Tissue paper kites



Peruvian rag doll



Mexican finger puppets



Japanese Fans made from tissue



Wooden Tree of Life

Make a list of elements you could include in your day dream generator under the following headings:

Write down at least 4 things under each heading and try to make them as random as possible

Main character - You, an animal/insect/fish, a person from a story or film, a mythical creature etc

Secondary character - You, an animal/insect/fish, a person from a story or film, a mythical creature etc

Place - Your room, another country, a wood, a supermarket etc

Mode of transport - Hot air balloon, elephant, stilts

Random objects - Cricket ball, a key, deckchair, book

Weather - Snow, hurricane etc

Feel free to add other categories.

Choose your top two ideas from each of the headings eg.

- **Main character** - my pet cat, my maths teacher
- **Place** - the Amazon, my shed

These will be your choices on your mobile. You will put one element on either side of a piece in your mobile.

Main character



Secondary character

Place

Mode of transport



Random objects



Weather

Write your list of elements here!

What is a mobile?

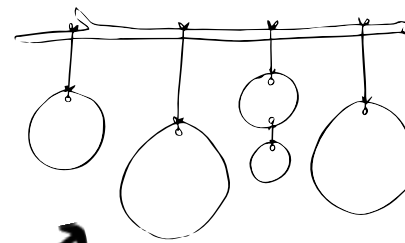
The dictionary says that a mobile is 'a decorative structure that is suspended so as to turn freely in the air.'

When I think of mobiles I think about the ones made by Alexander Calder, one of my favourite artists. Many people think that he was the first person to invent the mobile as we know it today.



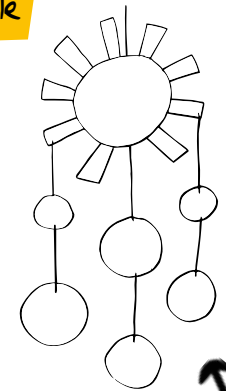
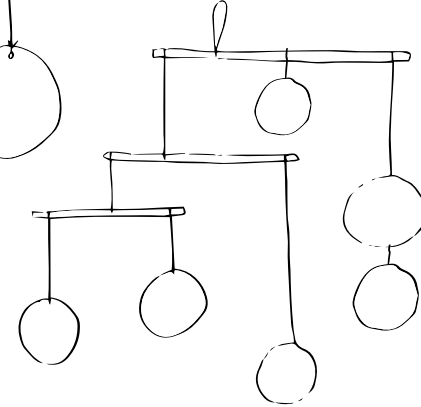
Calder's mobiles came in many sizes, ones you could sit on a table to ones that could fill a huge hall. They were mostly made up of abstract shapes, which is useful for our daydream mobile because they are good for sticking or drawing pictures on. He suspended his shapes from the ends of wire arms.

Different types of mobile



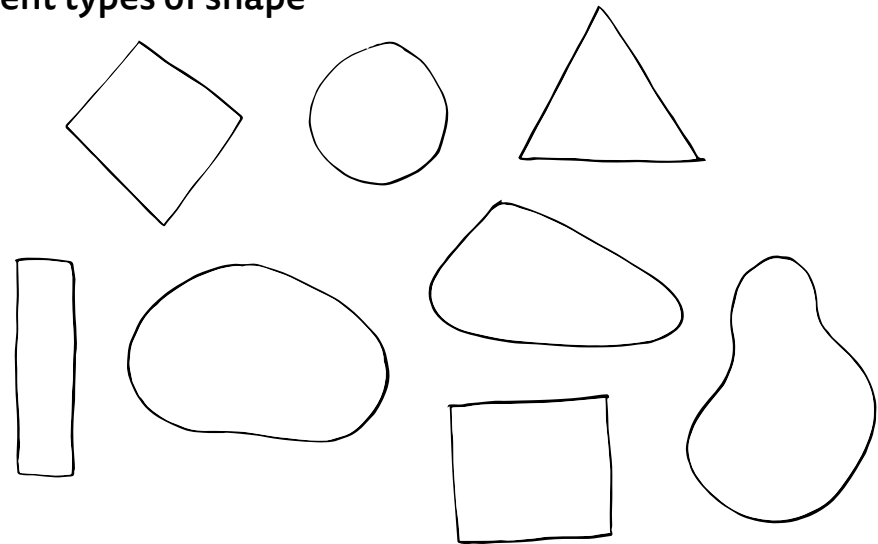
Stick mobile

Balanced mobile



Cascade mobile

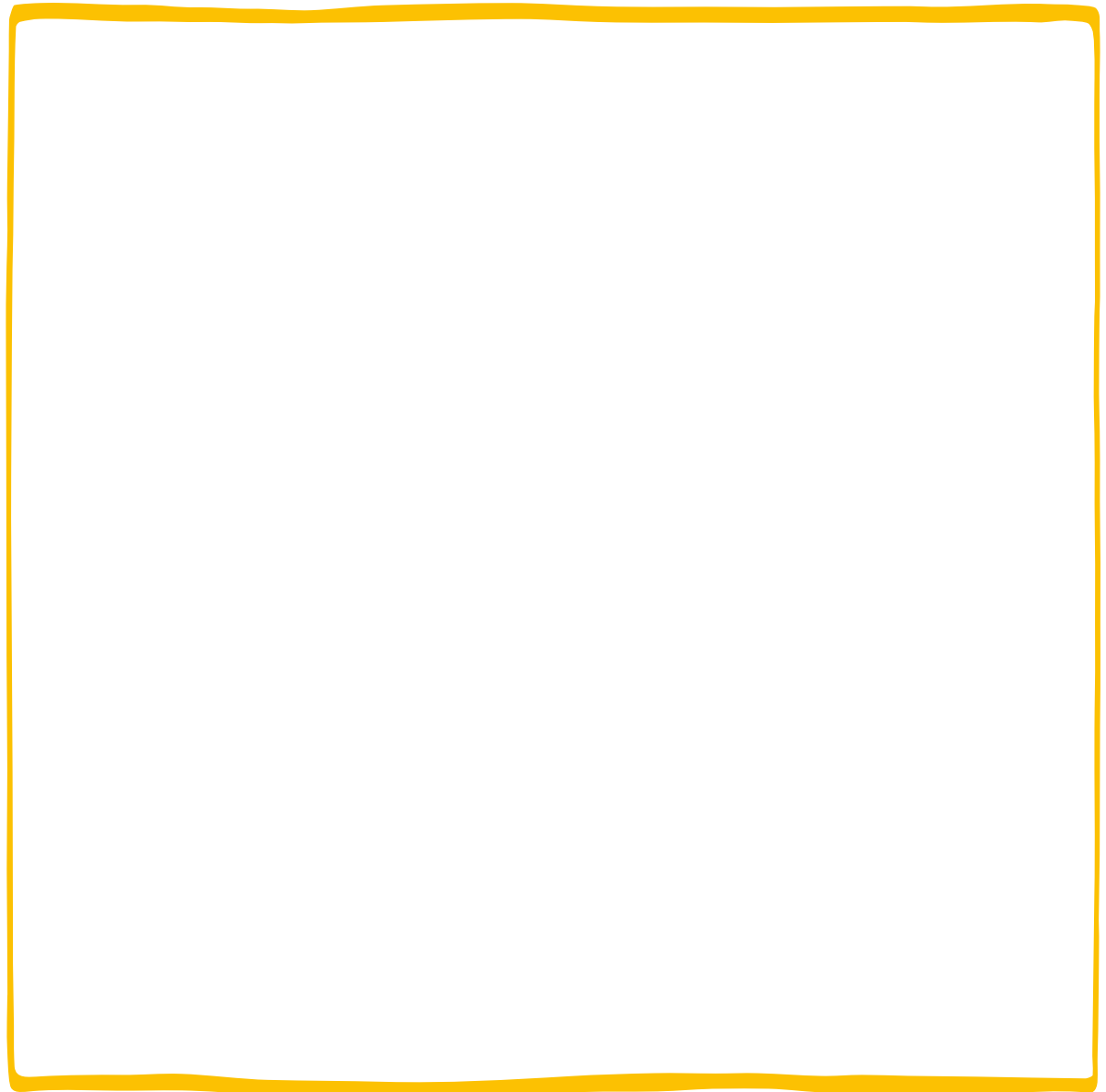
Different types of shape



Now that you know about the different types of mobile, decide which type you would like to make.

Remember that you need a shape for each of the headings that you listed as elements for your day dream generator. How many shapes do you need?

Sketch a few ideas for the type of mobile you would like to make and draw your favourite idea in the square on this page.



Draw the design of your mobile here.

Making your mobile

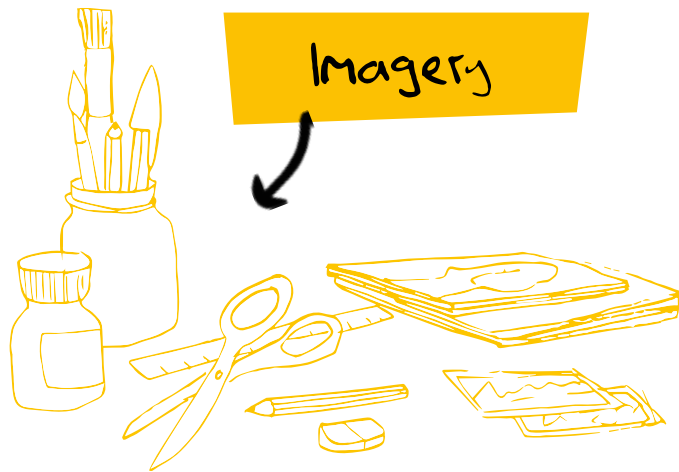
Once you have decided which type of mobile you are going to make, you need to think about the shapes that you are going to hang on your mobile and how you are going to represent all the elements you have chosen to include.

Shapes

The shapes can be made of coloured card, cereal boxes, stiffened fabric, felt, other food packaging, bits of thin wood or anything else you can find.



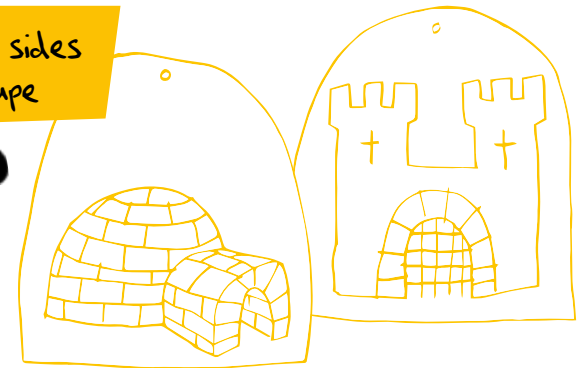
Imagery



How are you going to represent your chosen elements in your day dream generator? You could draw or paint them, or make collages using photos or imagery from old magazines, use wording (maybe cutting letters from the newspaper?) or photograph them.

Once you have chosen your shapes and made the images of your elements, you need to stick the images onto the shapes, ready to start making the mobile. You need a shape for each element (1 for the main character, 1 for the weather, 1 for the random object etc). Take two of your ideas for each heading and stick 1 on each side of your shape.

Example of the 2 sides of a 'place' shape



Example of the 2 sides of a 'weather' shape



Use the 'How to guide' assemble your mobile.

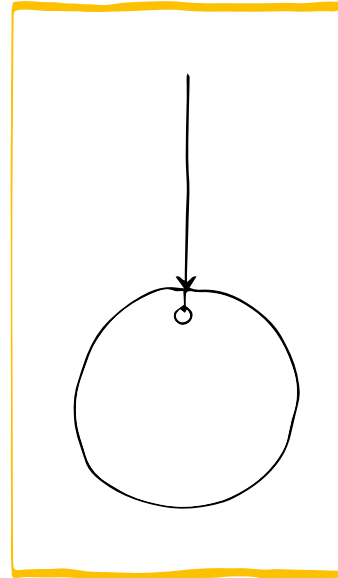
Let's make a mobile day dream generator!

You will need:

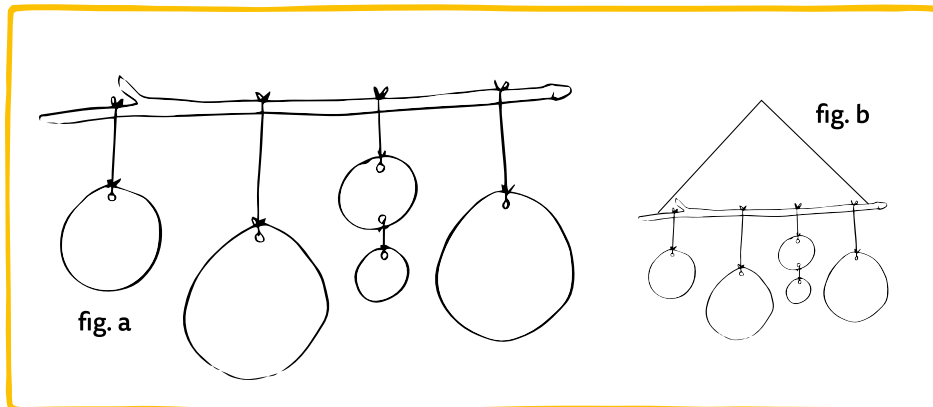
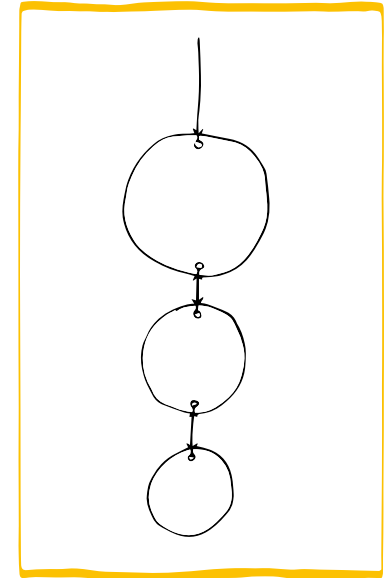
- All your shapes
- Fine thread
- Scissors
- PVA glue
- Sticks - these could be twigs, pencils, chopsticks, skewers, wire hangers, straws

1. When you build mobile you always start from the bottom and work up.

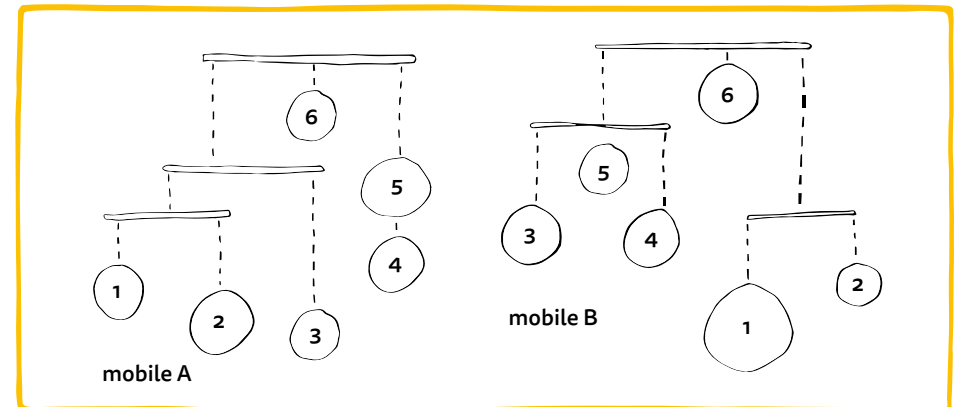
Begin by making a hole in the top of each of your shapes and attach a 20cm length of thread. You can shorten them later if you need to.



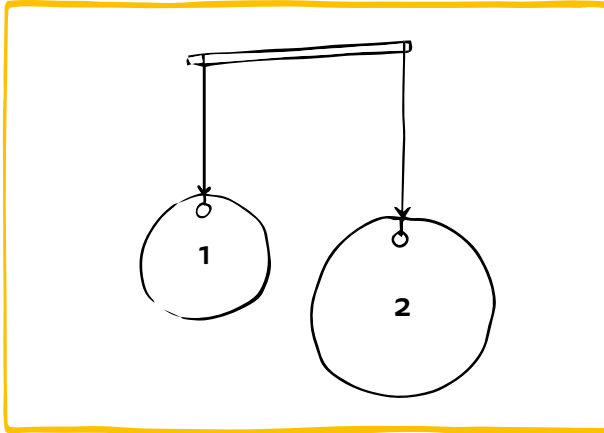
2. If you are making a cascade mobile, arrange the shapes in the order that you would like them to hang in. Now, apart from the bottom shape, make a hole in the bottom of each shape. Attach the thread from the top of the bottom shape to the bottom of the next shape up. Then attach these to the next shape. Continue until you have a chain of all your shapes.



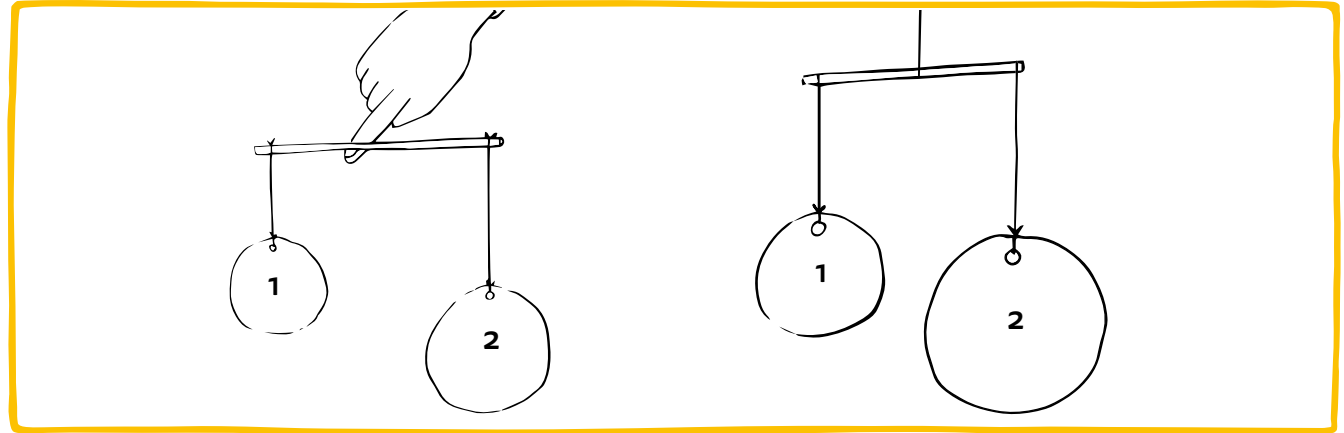
3. If you are going to hang your shapes from a twig. Attach each shape along the length of the twig (fig. a). Tie a piece of string that is twice as long as your twig to each end of your twig to hang it from (fig. b).



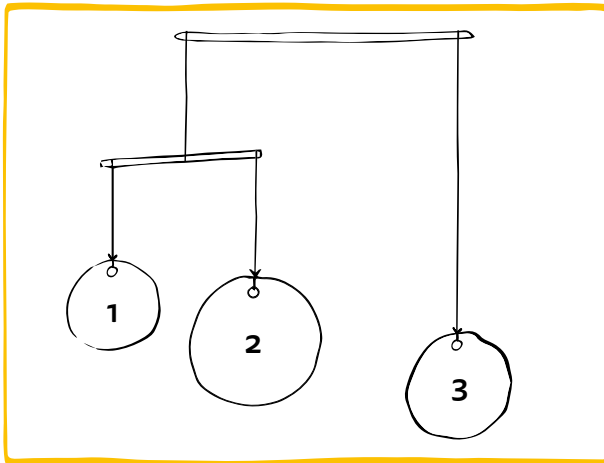
4. If you are going to make a balanced mobile arrange your shapes in the pattern you would like them to hang. Use three sticks in three different lengths.



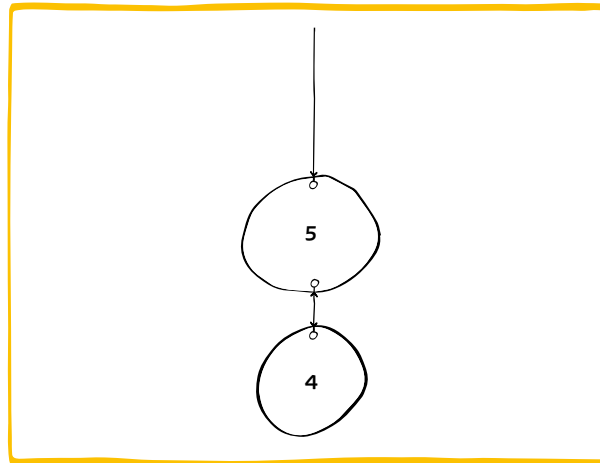
5. I'm going to show you how to make mobile A. Take two of your shapes and hang one on each end of your shortest stick.



6. Balance the stick on your finger, adjusting it until you find what is called the 'balance point'. If your shapes are the same size and weight this point will be roughly in the middle. If one is larger than the other the balance point will usually be closer to the larger shape. Once you have found the point mark it and tie a length of thread here. Make any final adjustments and glue it in position.

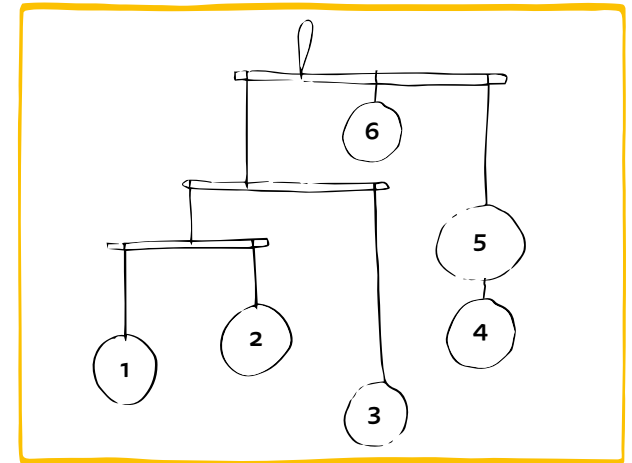


7. Now attach shape 3 to one end of your medium length stick with a length of thread that allows it to hang beneath the shapes on the short stick. Attach the thread from your short stick to the other end of your medium stick.



8. Find the balance point on your medium stick, mark it and attach a length of thread. Make your final adjustments and glue into position.

9. Attach shape 4 to shape 5 and then tie a long thread to the top of shape 5.

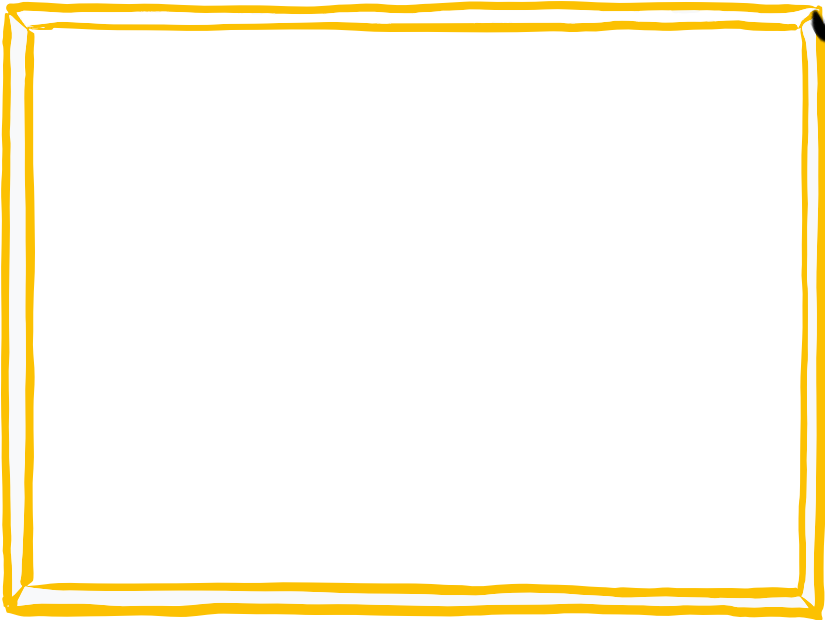


10. Attach shapes 4 and 5 to one end of your longest stick. Then attach your medium stick to the other end of the long one. Tie shape 6 onto the middle of the long stick. Find the balance point, mark it and tie a loop in this position. Glue it into position and hang it up!

Let's start day dreaming!

Hang your mobile day dream generator and photograph it as it slowly moves and turns, recording the different combinations of the elements.

Stick your photo of your favourite combination here



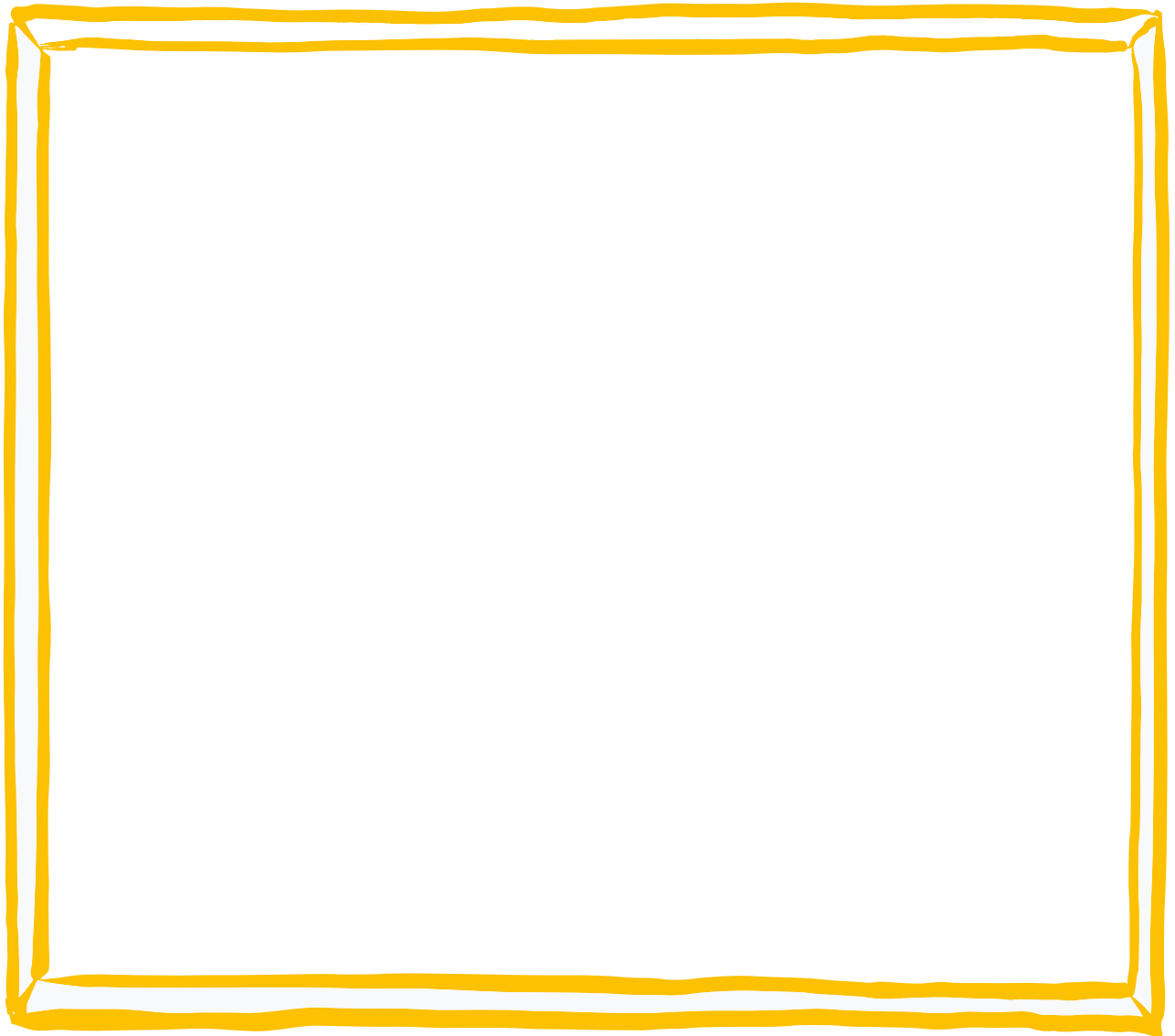
Make up a day dream using these different combinations and write down your favourite.

Write your day dream here:

My new mobile day dream generator inspired invention

Draw your invention here! *Use a black pen, add colours and labels*

Name it!
↙



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.....

First name

Age

School

Town/city

Tell us more!

(who your invention is for, what it does,
how it works!)

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Upload your idea at littleinventors.org to get feedback and who knows, it could be chosen to be made real!