Selwyn Libraries

STEAM: T is for Technology

Flashlight Star Constellations

Constellations & Hemispheres

I'm sure you will have noticed the millions of stars that we can see in the night sky. For many years, people have used these stars as a tool to navigate and identify the seasons.

Star constellations were created by people, especially farmers, who relied on the placement of the stars to know the changing seasons so that they could harvest of plant at the right times.

Star constellations are used as mnemonics, or memory aids, which means that people have created pictures out of the stars, in a connect-the-dot way, in order to help break up the sky into more manageable parts.

Did you know that there are 88 total constellations that we recognise today, and many are unique to the Northern or Southern Hemisphere? These are called circumpolar constellations. Some, however, can be viewed from both hemispheres like Orion.

Popular southern circumpolar constellations include Phoenix, Grus, Tucana, Eridanus, Hydrus, Lupus, Cruz, Centaurus and Carina.

In order for us to better find these stars, it is handy to know our Northern and Southern hemispheres.

Countries that lie north of the equator are in the Northern hemisphere and countries that lie south of the equator are in the Southern hemisphere. The equator is an imaginary line that runs through the middle and widest part of Earth.

Let's test your knowledge on the hemispheres! Can you name what hemispheres these countries are in? (Hint: the answers are attached below)

Country	Hemisphere
America	
Japan	
England	
Argentina	
India	
New Zealand	

Great work! Now that we understand what a constellation is and how it can be seen in certain hemispheres, let's project these star constellations in our own homes!

Materials

- Paper cups

- Scissors or a sharp wooden skewer

- Flash light

- Cardboard paper (cut into circular disks, diameter of your flashlight)

- A map of the constellations – See below:

- **Astronomy Constellations** (This website is great for star constellation maps as well as facts, but just remember to flip the seasons so that it's applicable to the Southern hemisphere!)

- **Star Constellations PDF** (This is a downloadable PDF map for the Southern hemisphere. It is free to sign up and to print)

Experiment

Step One:

There are two methods that you can use for this experiment. Firstly, using the downloadable maps of the constellations, use you scissors or skewer to create holes in each stars position at the bottom of your paper cup or on your cardboard disc.

Step Two:

If you have chosen the cardboard method, you will need to make sure your flashlight is a non-LED one. Remove the silver reflective disk in your flashlight, or alternatively, paint the disc black. Doing this means that you can see the constellation from a distance, rather than right against the wall.

Step Three:

Make sure you're in a dark room and place your flashlight against your cardboard disc or in your paper cup and your stars should project on the wall or ceiling. See if you can make out the shape that the constellation was named after!

For an extra activity, you can download a printable star finder from the NASA. There is one available for every month of the year!

Printable Star Finder

Answers

America	England	India
Northern	Northern	Northern
Japan	Argentina	New Zealand
Both Northern and Southern	Southern	Southern
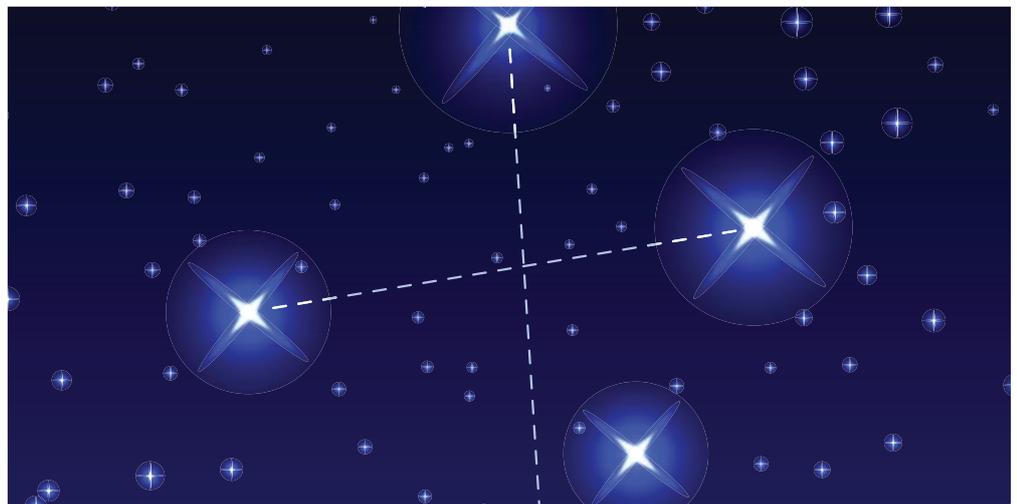
STEAM: T is for Technology

Stop Motion Movies

Stop Motion Animation

Stop motion animation is a film-making technique that you can do from your own home. How it works is with an object, often a clay model, or puppet, or even with Lego, that is captured in a photo or frame. That object is then moved slightly before another frame is taken and so on. When you play all these photos together as a movie, it makes your object or model look as though they are moving.

Some well-known stop motion movies are: Shaun the Sheep, Wallace and Gromit, The Corpse Bride and Coraline.

You can watch a short clip on the Wallace and Gromit and how they make it with this link: The Making Of Wallace and Gromit.

Have a think about all the objects you can use around your house to make a movie. Remember you can make your own object out of clay, playdough or Lego, and you can make your own background/setting with a sheet, or paint a scene onto a cardboard box. Maybe your movie takes place outside or in the kitchen sink. Whatever you choose, make it as imaginative as you possibly can!

Great, so let's get started and make a Stop Motion Movie!

Materials

- Props
- Setting
- Device (Tablets or smartphones work best)
- Stop Motion App (There are many stop motion apps that are available, one of the simple and free apps that is great for beginners is the Stop Motion Studio that is available on android or iOS)

Experiment

Step One:

This is the fun part where you get to create your movie scene. Put together or make your setting and collect your actors (props).

Step Two:

Practice with your stop motion app and then take your frames. Some apps allow you to add music or voice overs to really bring your characters to life.

Step Three:

Once you have completed your frames you can play your movie back!
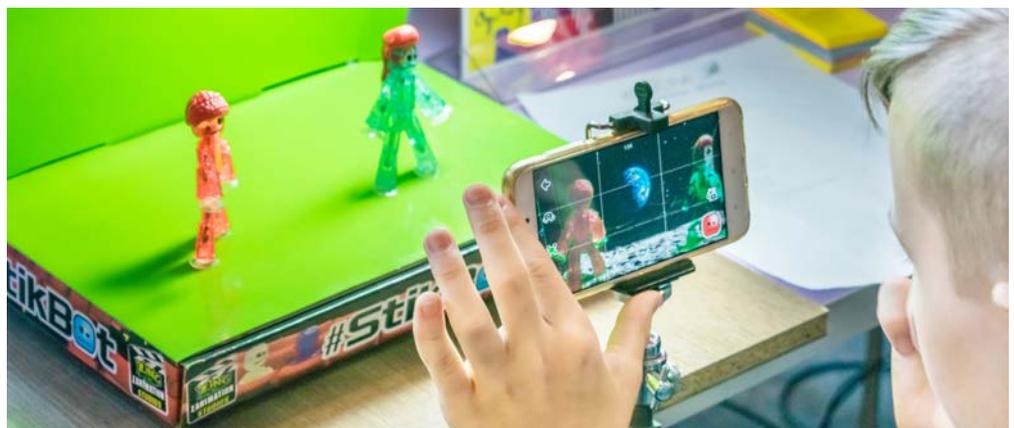
STEAM: T is for Technology

Coding Club

Coding

For those who are new to coding, don't worry – it's not as daunting as it may sound. Coding, or computer programming is simply a means to give a computer instructions in order to execute certain tasks. Beginning with visual drag-and-drop programmes, these help kids to form a basic understanding as to how coding works.

The benefits of learning to code include: teaching kids to problem solve, developing critical thinking, and organizational skills.

If you're keen to learn more, Selwyn Libraries and West Rolleston School have collaborated to create the Selwyn Online Code Club every Monday at 3.30pm

Designed for Selwyn kids Year 5 and up, these sessions use Zoom to host conference calls so kids can complete coding projects, share their work with each other, and have fun together. Everything is provided, including support learners

Register for Coding Club Here.