

Fun with Science within a Jewish Curriculum

A Few Experiments to Try...

Intro to Magnets:

Activity 1: Magnets attract metal:

- ▶ Children are given one magnet and one paper clip - can they make it move?
- ▶ They are given more paperclips, see how the magnetism transfers to the first paperclip, how many can link together with only the first one touching the magnet

Activity 2 : Magnets Attract/repel other magnets

- ▶ Each child is given another magnet - how do the two magnets react to each other?
- ▶ Talk about positive and negative poles, show them symbol and show them a battery that uses the same symbol
- ▶ Try using an magnet to move other magnets or paperclips through the table

Activity 3: Building with magnet sets

- ▶ Large and small magnet sets on builders' tray - free play, encourage to build stable structure

Resources

- ▶ Large magnets
- ▶ Small magnets
- ▶ Paper clips
- ▶ Builders' tray

Magnetic Painting

Small Painting

- ▶ Children are given one A4 piece of paper in a tray, a large magnet, paint tray with various colours with a number of small magnetic or metal balls
- ▶ They need to make a picture by making paint covered ball move around on their paper by moving a magnet under the tray
- ▶ Try a second picture by dragging the paint filled balls from the top - it will not be rolling, look at how the picture is different

Large Painting

- ▶ This time we will use the large magnetic balls to compare

Mixed painting

- ▶ This time use 2 balls, one large and one small

Resources

- ▶ Magnets
- ▶ Metal or magnet balls in various sizes
- ▶ Trays
- ▶ Paint posts

Floating Butterflies

Activity:

- ▶ Children are shown an example of the project and we look at whether we can get the kites to float with a magnet
- ▶ They are given a small paper butterfly to colour and a shoe box to decorate
- ▶ They are then given a paperclip with a length thread attached
- ▶ They attach the paperclip to the butterfly
- ▶ They can then try to get their butterfly to fly

Resources

- ▶ Magnets
- ▶ Paper kites
- ▶ Shoe boxes
- ▶ Material to decorate shoe box
- ▶ Threaded paperclips
- ▶ Pens

Compasses

Looking at compasses:

- ▶ Children are given a compass to look at and explore how the needle changes as they move around and try to find North
- ▶ They are given a large magnet and then asked to see if they can make the needle move

Making our own compasses

- ▶ Remind and demonstrate how magnetism can transfer to metal with large magnet and 2 paperclips
- ▶ Show them paper circle threaded with a needle - talk about sharp end and safety
- ▶ Get them to come up in groups of 2 to rub their needle with a magnet (25 times counted out loud as a group) and put it to float on a bowl of water
- ▶ Which way does the needle point? Do both needles point the same way?

Resources

- ▶ Compasses
- ▶ Magnets
- ▶ Card circles
- ▶ Needles
- ▶ Bowls
- ▶ Water

Blow Painting Monsters

Creating our own monster pictures using paint and straws

- ▶ Every child is given two small pots, each containing a different colour of paint
- ▶ They need to add a bit of water using a pipette until the paint is runny
- ▶ The children can then pour some of each colour onto a clean piece of paper
- ▶ They should try blowing at the paint (noting that nothing much happens)
- ▶ Next they try blowing the paint using a straw to make the paint go in various directions to make a monster shape
- ▶ They can use the end of the straw to drag out the paint to form legs, arms and eyes
- ▶ When the paint is dry they can draw a mouth and stick on some googly eyes

Resources

- ▶ Pots
- ▶ Pipettes
- ▶ Paint
- ▶ Water
- ▶ Paper
- ▶ Straws
- ▶ Pens
- ▶ Googly eyes

Balloon Races

Activity

- ▶ Discuss how balloons are blown up with “air”
- ▶ Test what happens when the air is let out of a balloon slowly vs quickly
- ▶ Choose a balloon to race stick it to the straw on the pre-prepared track
- ▶ Countdown is over and release the balloons

Resources

- ▶ Thread
- ▶ Sticky tape
- ▶ Straws
- ▶ Long balloons for racing
- ▶ Smaller balloons for children to practice blowing themselves
- ▶ Chairs
- ▶ Pegs

Making a Tornado in a Bottle

Activity

- ▶ Fill the plastic bottle with water until it reaches around three quarters full
- ▶ Add a few drops of dish washing liquid
- ▶ Sprinkle in a few pinches of glitter (this will make your tornado easier to see)
- ▶ Put the cap on tightly
- ▶ Turn the bottle upside down and hold it by the neck. Quickly spin the bottle in a circular motion for a few seconds, stop and look inside to see if you can see a mini tornado forming in the water. You might need to try it a few times before you get it working properly
- ▶ Spinning the bottle in a circular motion creates a water vortex that looks like a mini tornado

What is happening

- ▶ The water is rapidly spinning around the centre of the vortex due to centripetal force (an inward force directing an object or fluid such as water towards the centre of its circular path). Vortexes found in nature include tornadoes, hurricanes and waterspouts (a tornado that forms over water)

Resources

- ▶ Water
- ▶ A clear plastic bottle with a cap (that won't leak)
- ▶ Glitter
- ▶ Washing up liquid
- ▶ Funnel

Make a Ping Pong Ball Float

Activity

- ▶ Plug in the hair dryer and turn it on.
- ▶ Put it on the highest setting and point it straight up.
- ▶ Place your ping pong ball above the hair dryer and watch what happens.
- ▶ See if you can float 2 or even 3 ping pong balls as an extra challenge

What is Happening

- ▶ The ping pong ball floats above the hair dryer without shifting sideways or flying across the other side of the room. The airflow from the hair dryer pushes the ping pong ball upwards until its upward force equals the force of gravity pushing down on it. When it reaches this point it gently bounces around, floating where the upward and downward forces are equal.

Resources

- ▶ At least 1 ping pong ball (2 or 3 would be great)
- ▶ A hair dryer

Surface Tension Experiments

Experiment 1

- ▶ fill small bowl with water and sprinkle layer of ground pepper on top
- ▶ dip a cocktail stick in washing up liquid and touch the middle of the water with the stick's tip

Experiment 2

- ▶ fill small bowl with milk and put 3 drops of food colouring in various locations
- ▶ dip a cocktail stick in washing up liquid and touch the middle of the milk with the stick's tip

Experiment 3

- ▶ Fill small bowl with water and pour one drop of clear nail polish on the water
- ▶ Dip black card in water to scoop up nail polish

Resources

- ▶ Food colouring
- ▶ Water
- ▶ Milk
- ▶ Pepper
- ▶ Cocktail sticks
- ▶ Washing up liquid
- ▶ Nail polish
- ▶ Black card strips