Science - Year 3

Forces and Magnets – Block 3FM

Amazing Magnets

Session 4

Resource Pack

© Original resource copyright Hamilton Trust, who give permission for it to be adapted as wished by individual users.
We refer you to our warning, at the foot of the block overview, about links to other websites.

Magnet Caterpillar Challenge

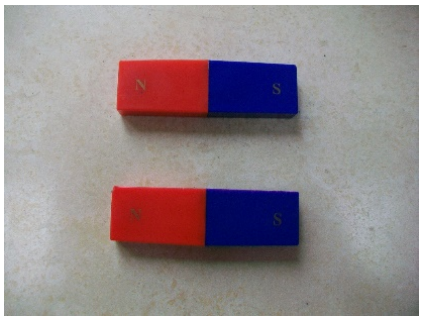
Make a caterpillar with 3 marble magnets in a row. Then use another marble magnet to try to make the caterpillar move without touching it.
Use a smooth surface like a table top.
Can you make it spin round or roll along? How did you do it?
Try to describe what is happening.

Our Findings

Our names are
This is what we have found *(Use drawings and notes to explain)*
We have discovered that

2 Bar Magnet Challenge

Experiment with 2 bar magnets.
What happens when you push a blue section towards a red section?
What happens when you push a red section towards a red section or a blue towards a blue?
Try this end to end, side to side, and broadsides together.
Try to describe what you have discovered.



Our Findings

Our names are
This is what we have found *(Use drawings and notes to explain)*
We have discovered that

Magnet Questions

What happens when you try to put one magnet near another magnet?

Are magnets always attracted to each other?

Compass Magnet Challenge

Float the magnet, then spin it around a few times and wait for it to settle. Each time, notice which way the red end points.
Hold a bar magnet above it and move it around. What happens?
Try putting the bar magnet on the table and moving it around the outside. What happens?

Our Findings

Our names are
When we floated the magnet we noticed that After we spun the magnet round and let it settle, we noticed that
When we held a bar magnet above the compass magnet we noticed that When we moved the bar magnet around the outside of the tub we noticed that When we took the magnet right away we noticed that
We have discovered that

Magnet Wand Challenge

Experiment with 2 wand magnets.
What happens when you lay them side by side, edge to edge or end to end?
Try it again after flipping them over.
What do you notice?

Our Findings

Our names are
This is what we have found *(Use drawings and notes to explain)*
We have discovered that

Marble Challenges

Put 2 magnetic marbles down on a smooth surface so they are joined together. Hold a super magnet or horseshoe magnet a little way away. Try to make the marbles roll along. Is this easy or hard? Why?
Now try to make them spin around in a circle. How are you doing it? Why do you think it is happening?
Now try it with a single marble.

Our Findings

Our names are
This is what we have found *(Use drawings and notes to explain)*
We have discovered that

Ring Magnet Challenge

Can you make all the ring magnets sit down together at the bottom of the pole?
Can you make all the rings float above one another?
What other arrangements of rings can you make?
How does it work?

Our Findings

Our names are
Here are some of the arrangements of floating rings we have made *(Make drawings)*
To make the rings float we needed to
We have discovered that

Session 4 Teachers' Notes

Answering the children's remaining questions

During Sessions 2 and 3, the children were encouraged to ask questions that could be answered by scientific enquiry. Most or all of those questions have probably already been addressed. The focus in this session is how magnets react towards one another, but you may have some remaining questions on a different aspect of magnetism. If this is the case and the questions are feasible, you may decide to allow a small group of able children time to try to answer them either through practical investigation or Internet research during this session. Before the session, consider what resources they are likely to need and make sure these are available.

The remainder of the class will focus on how magnets affect one another. If you have no questions on this, don't worry as two are provided in the session resources.

Resources

The activities in this session are a group of 6 challenges which require the children to actively investigate how pairs or groups of magnets behave towards each other. It is intended that pairs of children will work on a challenge. If they complete it, they can then move onto another available challenge of their choice. To facilitate this flow between the challenges, you will need to have resources for a few more challenges than you have pairs of children.

Wand magnets – 2 needed per challenge

Bar magnets – 2 needed per challenge

Ring and pole magnets – 1 set per challenge

Marble magnets – 4 needed per caterpillar challenge

2 needed per twin/ single marble challenge together with a horseshoe or super magnet

Compass magnet – 1 needed per challenge together with a tub of water and another reasonably strong magnet, e.g. wand, bar or horseshoe

Organisation

Before the session set up a table or zone for each different challenge (i.e. 6 in all). Lay out the resources and challenge sheets ready. This will make a smooth transition from teaching input to independent activity.