

Task: Te Mahi a te Autō — Mystery Magnets

Approach: One to one

Focus: Magnetism

Resources: 2 magnets with poles marked, mystery magnet box, 2 flat cardboard “magnets” with poles marked, sticker, recording book

Kupu: autō = magnet autō pepamārō = cardboard magnet pepa whakapiri = sticker

Questions / instructions:

Hoatu tētahi autō ki te ākongā.

Āta tirohia tēnei autō.

Kua tuhia he “R” ki tētahi pito, he “T” ki tētahi atu.

Give student one magnet.

Look carefully at this magnet.

You can see that the magnet has an “N” at one end and an “S” at the other end.

- Kei te mōhio koe he aha te tikanga o ēnei pū (reta)?

HE ĀWHINA: Ki tōu whakaaro, e tohu ana te “R” me te “T” i te aha?

What do those letters mean?

PROMPT: What is meant by N and S?

N = North, North pole

S = South, South pole

Ki te kore te ākongā e mōhio, māu e whakamōhio atu, koia nei ngā pito autō. E tohu ana te “R” i te raki, e tohu ana te “T” i te tonga.

Hoatu ki te ākongā ētahi autō pepamāro e rua, kua tohua ngā pito ki te “R” me te “T”.

If student doesn’t know tell them that these are the magnetic poles, North and South.

Give student 2 cardboard magnets marked N and S.

- Whakaarohia he autō tūturu ēnei.

Whakapiria ngā pito e rua e tohua ana ki te “R”.

Ka aha ēnei autō, mehemea he autō tūturu?

Waiho te ākongā ki te āta whakaaro, ki te whakahoki kōrero mai.

Imagine that these are 2 magnets.

Let’s put together the two ends that are the same.

Put the two North ends together.

What would happen if these were two real magnets?

Allow time for student to respond.

would resist, repel

% responses

5

5

34

- He aha te mahi a ngā autō mehemea ka whakapiria ētahi pito rerekē? Whakapiria tētahi o ngā “R” me tētahi “T”.

Ka aha mehemea he autō tūturu ēnei?

What might happen when you put two different poles together? Try putting the North and South ends together.

What would happen if these were real magnets?

would attract

% responses

31

Waiho te ākongā ki te āta whakaaro, ki te whakahoki kōrero mai. Kātahi ka hoatu ētahi autō tūturu e rua ki te ākongā.

Whakamātauria ēnei autō tūturu.

He aha te mahi a ngā autō mehemea ka whakapiria ētahi “R” e rua? Whakapiria ngā pito “T” e rua.

Allow time. Then give the student the two real magnets.

Now try testing with the two real magnets.

Find out what happens when you put the two North poles together. Then try putting the two South poles together.

- He aha te mahi a ngā autō ina whakapiria ētahi pito ōrite?

What happened when you put the same poles together?

resis+ts/repels

86

- Ināianeī, whakapiria ētahi pito rerekē. Whakapiria he “R” me tētahi “T”.

He aha te mahi a ngā autō?

Now try putting two different poles together. Try a North pole to a South pole.

What happens?

attracts

86

- Whakamāramahia mai te tikanga o te autō, arā, he aha te mahi ina whakapiria ētahi pito ōrite, he aha te mahi ina whakapiria ētahi pito rerekē?

Try to tell me a rule for what happens when you put the same poles together or different poles together.

not marked

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Kei roto i tēnei pouaka tētahi autō, he ōrite ki ēnei.
Whakamahia tētahi o ēnei autō hei kimi mai i te wāhi e noho ana te autō i roto i te pouaka.

Whakapiria te pepa whakapiri ki runga o te pouaka, ki te wāhi pū e whakaaturia ana.

Whakamahia te taha kahurangi, whakaritea a Runga ki Runga.

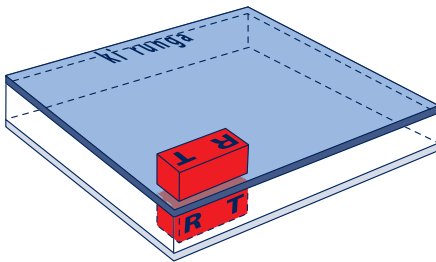
There is a magnet in this mystery box that is the same as your magnets.

Use one of your magnets to work out where the magnet is hidden.

Place sticker exactly as shown on top of the box.

Use the blue side and match top to top.

Give student box.



[Plain white sticker with word 'ki runga' (top) printed at one edge is placed over the surface of the box to enable the student to record their answer]



% responses

7. Tuhia ki te pepa whakapiri te wāhi e noho ana te autō i roto i te pouaka.

Tohua ngā pito e rua, te “R” me te “T” o te autō i roto i te pouaka.

Now draw on the sticker the position of the magnet that is inside the box.

On your drawing, write N where you think North is and S where you think South is on the magnet that is inside the box.

horizontal in bottom left corner

% responses

79

Kia mutu te mahi a te ākonga, me waiho tana pepa whakapiri ki te pukapuka hopu kōrero.

When student finishes the task put sticker in recording book.

Total score:	7	0
	5-6	33
	3-4	40
	0-2	27

Commentary:

Only about a third of students showed prior knowledge about magnets, but most correctly reported experimental results.