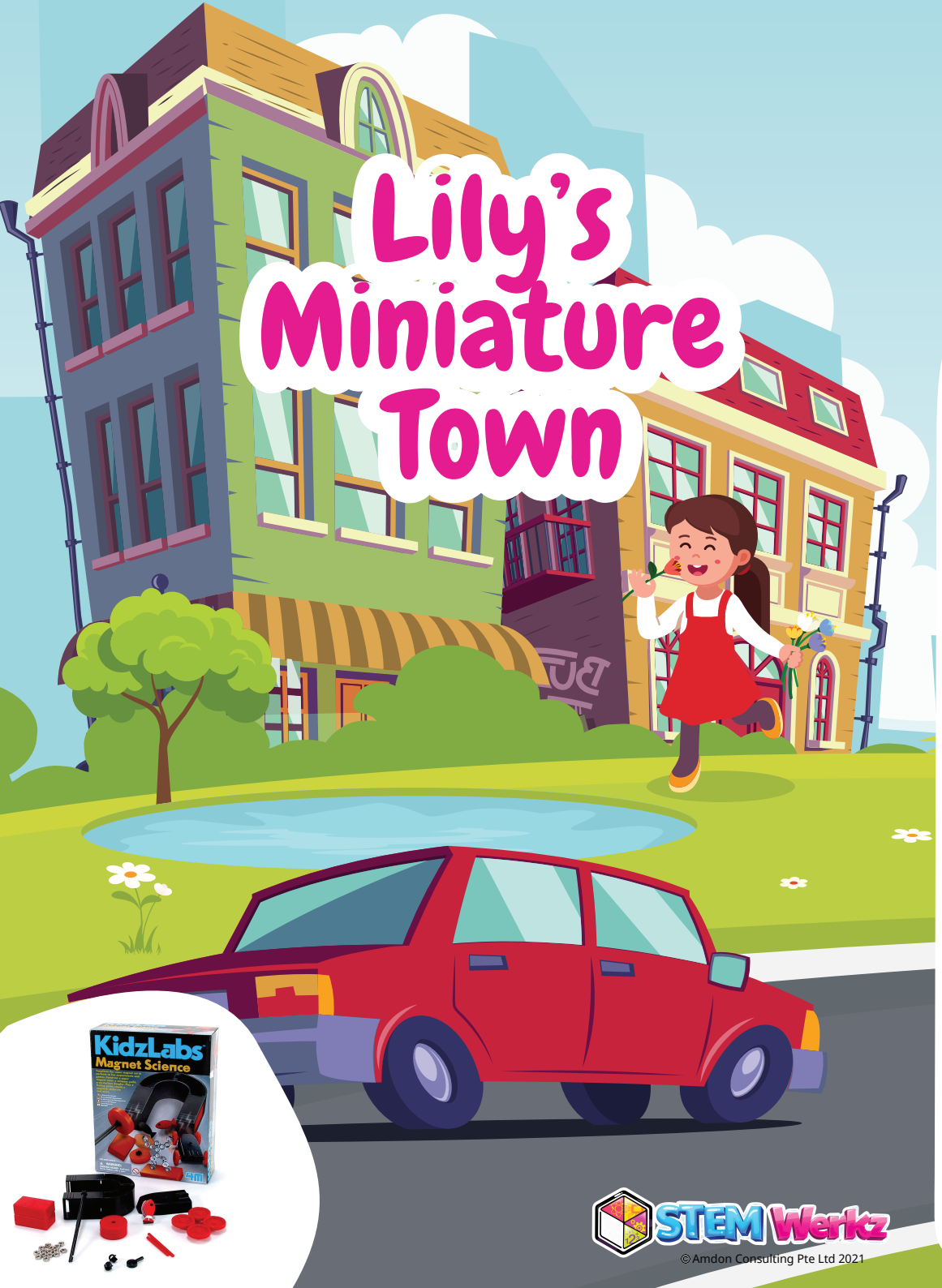
Lily's Miniature Town



STEM Werkz

Lily's Miniature Town Part I

One Sunday morning, Lily woke up feeling excited. A few days ago, she received a paint set and a toy car that she can play with on her birthday.

"You can paint it after breakfast," Lily's mother said. Upon hearing her mother's words, Lily sprinted to the kitchen and gobbled down her cereal.

After breakfast, she unwrapped her paint set and started painting her new toy car. "Make sure you do not get paint on your hands!" Lily's mother reminded her.

After painting the toy car blue, Lily was eager to play with it. She decided to move it around her miniature town of toys.

As she was about to touch the car, she remembered what her mother said. "Oh no! The paint takes too long to dry. How do I play with it without getting paint on my hands?" Lily wondered.

What can she do to make her toy car move around the miniature town without getting paint on her hands?

Challenge #1

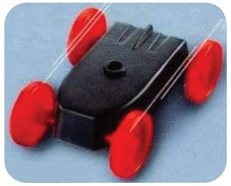
A) PLAN: Explore the KidzLabs Magnet Science kit and come up with a plan to help Lily!

- Observe how the magnets work.
- What happens when you put two magnets together?
- Do the magnets move away from each other or stick together?
- Do the magnets interact the same way when they are put in different positions?
- What happens when you put the magnets near the toy car?

Scan to learn how the arrangements of magnets will cause them to attract or repel each other.

Write or draw your ideas to show Lily can move the toy car without getting paint on her hands!

- Which objects in the KidzLabs Magnet Science kit will you use?
- How will you use those objects to help Lily solve her problem?



B) CREATE: Based on what you have drawn, use the KidzLabs Magnet Science kit to set up your design!

☐ Tick once your setup is completed.

C) TEST:
Test your creation! Did it work?

☐ Yes ☐ No

Explain how your design has helped Lily solve her problem.

Think!

How can you improve your design to make the toy car move around better?

Lily's Miniature Town Part II

After playing with her new toy car, Lily decided to play with her toy fish. In her miniature town, there was a small pond that contained toy fish.

"Oh no! The water in the pond has become dirty!" Lily cried out to her mother. Hearing Lily's cries, her mother prepared a new jar with clean water for her pond.

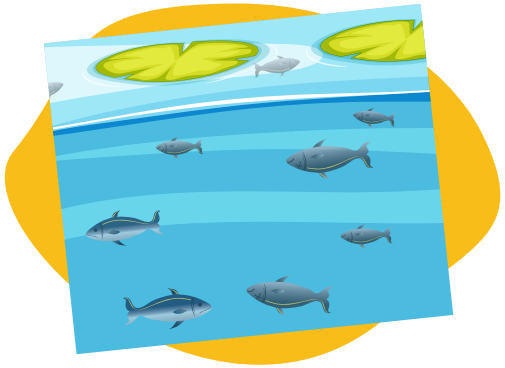
As Lily carried the jar of clean water into her playroom, she realized that she would dirty her hands by taking the fish out from the pond. "How do I get the fish out of the pond without getting my hands dirty?" Lily thought to herself.

What should Lily do?

Challenge #2

A) PLAN: Explore the KidzLabs Magnet Science kit and come up with a plan to help Lily!

- Observe how the magnets work.
- What happens when you put a magnet near the toy fish? Did the toy fish move closer to the magnet?
- Do you observe the same interaction between the magnet and toy fish when the toy fish is placed in a jar of water?



Scan to learn about the interaction of a magnet with various objects!

Write or draw your ideas to show how Lily can move the fish from the dirty water into a jar of clean water.

- Which objects in the KidzLabs Magnet Science kit will you use?
- How will you use those objects to help Lily solve her problem?

B) CREATE: Based on what you have drawn, use the KidzLabs Magnet Science kit to set up your design!

☐ Tick once your setup is completed.

C) TEST:

Test your creation! Did it work?

☐ Yes ☐ No

Explain how your design has helped Lily solve her problem.

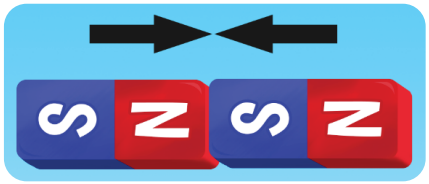
Think!

How can you improve your design to make it easier for Lily to transfer the fish?

SUMMARY

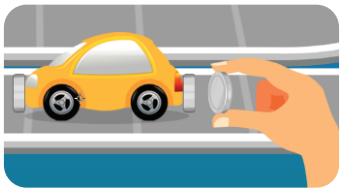
- All magnets have two poles – a south and north pole.

- Magnets can interact with one another.
  - Unlike poles attract.



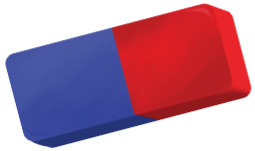
  - Like poles repel.

- Magnets can attract magnetic materials such as steel and iron.



DID YOU KNOW?

Magnets will always have two poles - even if you cut them into halves.



Scan to find out how magnets and one battery can be used to move multiple toy cars!

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