SCIENCE BOOKLET – "A Cat in Trouble" (Ages 7-8)

⭐ 1. Why Does the Cat Float? – The Power of Helium

Read:
Helium is a very light gas. It is lighter than the air around us.
That is why balloons filled with helium float up.

Activity: Look and Compare

Look at two balloons (or pictures):

- One balloon filled with air
- One balloon filled with helium

Draw the balloon that floats up:

Question:
Why do some balloons float and others do not?

⭐ 2. How Many Balloons Does the Cat Need?

Read:
A helium balloon can lift only a tiny amount of weight.
To lift a whole cat… you would need MANY balloons!

Activity: Estimate
A small cat in our story weighs 2 kilograms (2000 grams).
One helium balloon can lift about 14 grams.

Your prediction:
How many balloons do you think the cat needs?
(Real answer: about 142 balloons!)
Draw the cat with the number of balloons you imagine:

⭐ 3. Where Does the Wind Take Him?

Read:
The wind can push balloons in different directions.
That is why the cat travels from one tree to another.

Experiment: Wind Power

You need: a balloon and your breath (or a fan).
Step 1: Blow softly. What happens?
Step 2: Blow strongly. What happens?

Questions:

1. What happened when you blew softly?
2. What happened when you blew strongly?
3. How do you think the wind moved the cat in the story?

⭐ 4. Hot or Cold? What Happens to Balloons?

Read:

When it is warm, the gas inside a balloon expands and the balloon gets a little bigger.
When it is cold, the balloon gets smaller.

Experiment: Temperature Test

Place a balloon in warm water.
Place the same balloon in cold water.
Observe the changes.

What happened?
Warm water: _____
Cold water: _____

⭐ 5. The Cat's Flight Path – Mapping His Journey

Read:

Wind direction changes the path the flying cat takes.

Activity: Map the Flight

On a piece of graph paper:

1. Draw Tree A (the tree the cat climbs).
2. Draw Tree B (the tree he lands on).
3. Draw arrows showing the wind direction.
4. Draw the cat's flight path from one tree to the other.

Question:

Can the cat control where he goes? Why or why not?

⭐ 6. Light vs. Heavy – Which Balloon Weighs More?

Read:

A balloon with helium is lighter because helium is a light gas.

Activity: Compare

Feel (or imagine) two balloons:

- Balloon with air
- Balloon with helium

Which one feels lighter? Why?

⭐ 7. Build Your Own Balloon System – Mini Engineering!

Activity: Design Challenge

Materials: paper, tape, straws, scissors.

Task:

1. Draw a small cat from "A Cat in Trouble."
2. Build paper "balloons" and attach them to the cat.
3. Blow gently to see if your design moves with the "wind."
4. Improve your design to make it move more smoothly.

Draw your design:

⭐ 8. Final Check (Very Easy!)

1. Why do helium balloons float up?
2. What happens to a balloon on a very hot day?
3. Do you need many or few balloons to lift a cat?
4. What did you learn about wind and movement?
5. Which activity did you enjoy the most?