



REFINEMENT ZONE

Design → Build → Test → Notice → Change → Test Again

PROMPT CARD 1

The Basic Car

Your Challenge: Design a car

Your Car Must:

- ☐ Have 4 wheels
- ☐ Use only the magnetic car pieces
- ☐ Be at least 10 cm long
- ☐ Stay together when it moves

DESIGN

What will your car look like?

BUILD

Build Prototype A.

TEST

Push your car. Watch how it moves.

NOTICE

What works? What does not work?

CHANGE

What could you change to make your car faster?

Engineer Tip: Try changing the size, shape, or weight of your car

PROMPT CARD 2

Your Challenge: The Long Car

Design a car that is **long**.

Your Car Must:

- ☐ Have 4 wheels
- ☐ Use only the magnetic car pieces
- ☐ Be at least 20 cm long
- ☐ Roll without falling apart

DESIGN

Draw or describe your idea.

BUILD

Build Prototype A.

TEST

Measure the length. Then push your car.

TEST

Measure the weight. Then push your car.

NOTICE

What works? What is a problem?

CHANGE

What could you change to make your car better?

TEST AGAIN

Build Prototype B. Measure and test it again.

Engineer Tip: A long car needs a strong base.

PROMPT CARD 3

Your Challenge: The Strong Car

Design a car that is **strong**.

Your Car Must:

- ☐ Have 4 wheels
- ☐ Use only the magnetic car pieces
- ☐ Stay together when pushed
- ☐ Roll at least 1 meter

DESIGN

Where will your car need to be strong?

BUILD

Build Prototype A.

TEST

Push your car for 1 meter.

NOTICE

Did any pieces come loose?

CHANGE

How can you make the weak parts stronger?

TEST AGAIN

Build Prototype B. Test it again.

Engineer Tip: Find the weak spots. Then refine your design

PROMPT CARD 4

Your Challenge: The Best Overall Car

Design a car that meets **all the requirements**.

Your Car Must:

- ☐ Have 4 wheels
- ☐ Use only the magnetic car pieces
- ☐ Be at least 10 cm long
- ☐ Weigh less than 9 grams
- ☐ Roll at least 1 meter
- ☐ Stay together when it moves

DESIGN

What will your car look like?

BUILD

Build Prototype A.

TEST

Measure, weigh, and test your car.

NOTICE

Which requirements does your car meet?

CHANGE

What could you change?

TEST AGAIN

Build Prototype B. Test it again.

Engineer Tip: A good design is a balance of many needs.