Inspiring the Next Engineers and Scientists

What is STEM?
STEM is Science, Technology, Engineering, and Math: All very important subjects that help you build robots!

This booklet is packed with all kinds of cool robot games and puzzles:
- Go on a scavenger hunt to find robots around you
- Color and design a robot puzzle
- Try a crossword puzzle, word search or maze
- Help Roomba® find its way home
- Write a silly story with a friend

iRobot STEM Program
iRobot is committed to building a future for STEM education in the United States. Our multi-faceted outreach program is a resource for students, parents and educators to share in our excitement for the robotics industry and get an inside look at what we do here.

Learn more about the iRobot STEM Program: Visit irobot.com/STEM
Robot Puzzle

Color this robot and have an adult help you cut on the dotted lines to make a robot puzzle!

What is the robot holding with all those arms? Draw what it’s holding!
Robot Puzzle

Color these robots and have an adult help you cut on the dotted lines to make a robot puzzle!

If you print this activity book double-sided, now you’ll have a robot puzzle with two sides!
STEM Word Search
See if you can find all the words!

WHEELS
MOTOR
STEM
ROBOT
SCIENCE
MATH
BUTTONS
BUILD
DISCOVER
GEAR
INVENT
ROOMBA

| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |
| A | T | A | A | G | U | B | C | J | K | P | T | U | M | M |
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| S | B | E | O | P | F | P | Z | D | N | Z | Y | R | E | E |
1. To create new technology, you must _________ it (turn it from a design into a real, physical machine).

2. Some robots have _________ that you can push to turn them on, off or to make them do other things.

3. This toothed wheel engages another toothed wheel in order to transmit force to change speed. Rhymes with “hear.”

4. When you come up with an idea and then build it, you ___________ something new.

5. A machine that can do things on its own is called a ______________.

6. __________ is a school subject that includes biology, chemistry and physics.

7. __________ are one of the ways that robots, like cars, can move through the world.

8. You can ___________ new things when you study science, technology, engineering and math.

9. The robot’s ______________ move the wheels, arms and grippers.

10. When you study __________, you will learn addition, subtraction, multiplication and division, the basis of engineering and most technology.

11. A robot uses ____________ to feel its surroundings.
Robot Crossword

1. To create new technology, you must ________ it (turn it from a design into a real, physical machine).
2. Some robots have __________ that you can push to turn them on, off or to make them do other things.
3. This toothed wheel engages another toothed wheel in order to transmit force or change speed.
4. When you come up with an idea and then build it, you ________ something new.
5. A machine that can do things on its own is called a __________.
6. _______ is a school subject that includes biology, chemistry and physics.
7. _________ are one of the ways that robots, like cars, can move through the world.
8. You can __________ new things when you study science, technology, engineering and math.
9. The robot's __________ moves the wheels, arms and grippers.
10. When you study _____, you will learn addition, subtraction, multiplication and division, the basis of engineering and most technology.
11. A robot uses __________ to feel its surroundings.
## Scavenger Hunt

There are a lot of parts used in robots that you can also find around your home or school. Ask an adult to help and see how many objects you can find that have buttons or switches, motors, LEDs, something you can program and something you think is robotic. For a challenge, see if you can complete the Scavenger Hunt without using “computer” in any category! Can you find objects that fit into more than one category?

<table>
<thead>
<tr>
<th>Something that has buttons or switches</th>
<th>Something that has a motor in it</th>
<th>Something robotic</th>
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<table>
<thead>
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<th>Something that you can program</th>
<th>Something with an LED or indicator light</th>
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Roomba® Maze

Help the Roomba® vacuuming robot get around all the furniture and find its way to the HomeBase to charge.
Design a Robot

Imagine what sort of robot you would build! Draw your robot and then describe it.

This robot was designed by:

My robot would be used to:

I would call it:
Spot the Differences

Can you find and circle the 10 differences between these two pictures of STEM supplies?
Connect the Dots
Complete the picture and color it in!
Complete the Robots

Can you draw the other half of each robot? Color them in after!
Silly Story

Pair up with a friend and have them give you a word to fill in for each blank without reading the story first, and then read the completed silly story out loud.

If I built my own robot, it would be ______ feet tall, with a ____________ ___________ and a ____________ ___________. It would help me with ______________ and would do a ____________ job. It would have a lot of sensors so it can ____________ ___________. My robot would also be able to ______________ ______________, and clean up after my pet ______________. With my ____________ robot, I would have more free time to go ____________ with ______________, instead of ______________. Robots and technology are really ____________!
Anatomy of a Roomba®

What does each part do?

- **Side Brush**: Cleans dirt out of corners
- **Charging Contacts**: Connects the battery to the charger
- **Caster Wheel**: Balances the robot and senses motion
- **Battery**: Powers Roomba®
- **Optical Sensor**: Senses motion
- **Brushes**: Pick up dirt off the floor
- **Cliff Sensor**: Uses infrared to prevent falling off edges
- **Wheels**: Move Roomba®
- **Piezoelectric Sensor**: Senses dirt
- **Dirt Bin**: Collects the dirt
- **Bumper & Bump Sensor**: Senses objects in its path
Puzzle Solutions

Word Search Solutions:
- Wheels
- Science
- Buttons
- Discover
- Motor

Maze Solutions:
- Start
- Finish
Puzzle Solutions