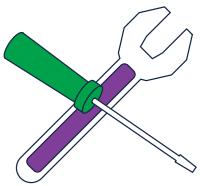
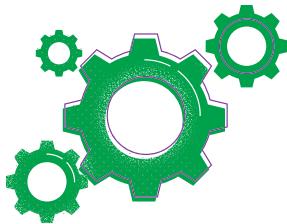


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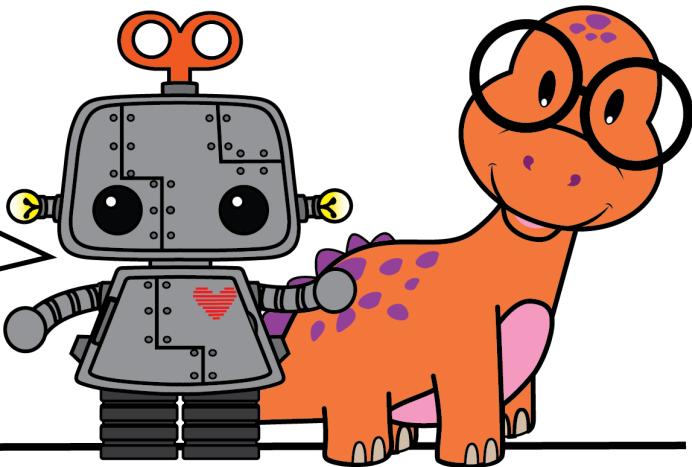
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ROBOT DISSECTION



Greetings _____!
We're Tinker and Sputnik
of Tinker the Robot.
Get ready to learn some
robotics!



WHAT IS A ROBOT?

A robot combines mechanical components, electronics, and programming to help us perform a task.

Robotics uses

- Mechanical Engineering
- Electrical Engineering
- Computer Programming

SUPPLIES

Supply suggestions. We welcome you to substitute or add supplies. :)

- Something fun to take apart
- Screwdriver
- Empty Table or floor

WHAT IS A ROBOT DISSECTION?

A Robot Dissection is when a robot or an electromechanical item is taken apart. It is a fantastic way to explore mechanical and electrical engineering.

HOW TO USE

1. Download and print the lesson plan
2. find an item you feel comfortable taking apart (we recommend getting an item from a second hand store)
3. Pick a level on the lesson plan page
4. Review the Robot Fundamentals page
5. Turn off, unplug, and remove batteries from your item
6. Carefully take apart your item
7. Have fun!

Have some questions?

email - kay@tinkertherobot.com

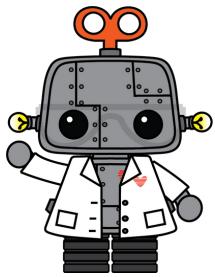
Want to build your own robot?

Check out our Robot Build Series at tinkertherobot.com

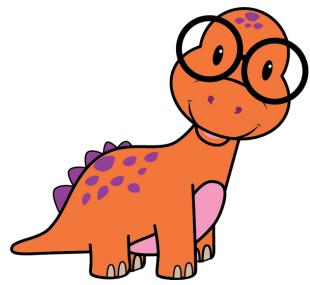


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ROBOT DISSECTION LESSON PLAN



There are several ways to turn a dissection into a learning opportunity. This is a rough guide.

****SAFETY **** Please make sure all electronics are unplugged, batteries removed, and turned off before beginning any dissections. All dissections need to be supervised by an adult.

Level 1 - Robot Dissection - Ideal for all Ages

- Remove components
- Lay out all components on a table or the floor for a picture
- Put your robot back together (extra points if your items still works!)

Level 2 - Identify Components - Ideal for Ages 12 +

- Identify the type of component it is - Mechanical or Electrical
- Identify the component
- Write a blurb about what you think the component does

Level 3 - Hack & Improve - Ideal for Ages 15 +

- Brainstorm ways to modify and improve the product
- Research how to implement your modification - Check out Instructables for help

Need some help getting started?

Fictiv has an amazing resource page where they have done several robot dissections

Everything from a Nintendo Wii to a Sphero

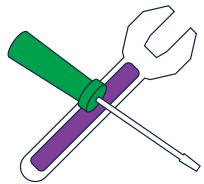
Fictiv Teardown - <https://www.fictiv.com/teardowns>



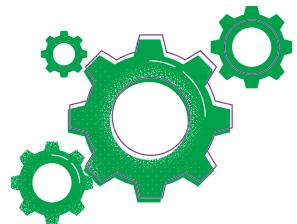
Take a picture of this sheet
to submit as a work sample

Name

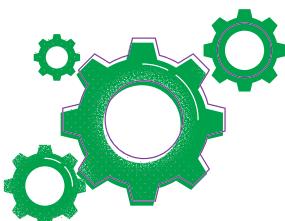
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ROBOT FUNDAMENTALS



Robotics combines mechanical components, electronics, and programming to help us perform a task. Robotics uses mechanical, electrical and computer programming to create an integrated robot.



The **Mechanical Components** are your plastic parts like your outer shells, buttons, keyboard, or mouse. They also include electromechanical components like motors.

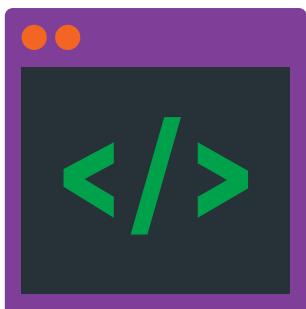
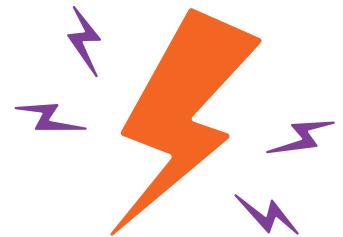
Mechanical Engineers specialize in designing 3D parts in CAD (computer-aided design) and prototype using a 3D Printer.

To learn more try TinkerCAD - 3D Designs

The **Electrical Components** consist of your sensors, computer components, lights or displays.

Electrical Engineers design and prototype electrical circuits that are used in all types of industries ranging from toys, to cars, to spacecraft.

To learn more try TinkerCAD - Circuits



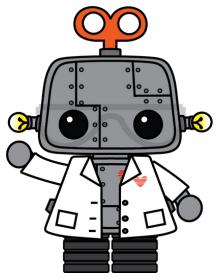
The **Programming** (not covered in a dissection) or code tells your robot how to react to the environment. This is the code that you write or the directions you send your robot and is stored in its computer.

Programmers write code behind robots, apps, websites, and more!

To learn more try code.org

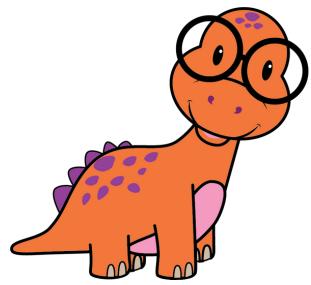
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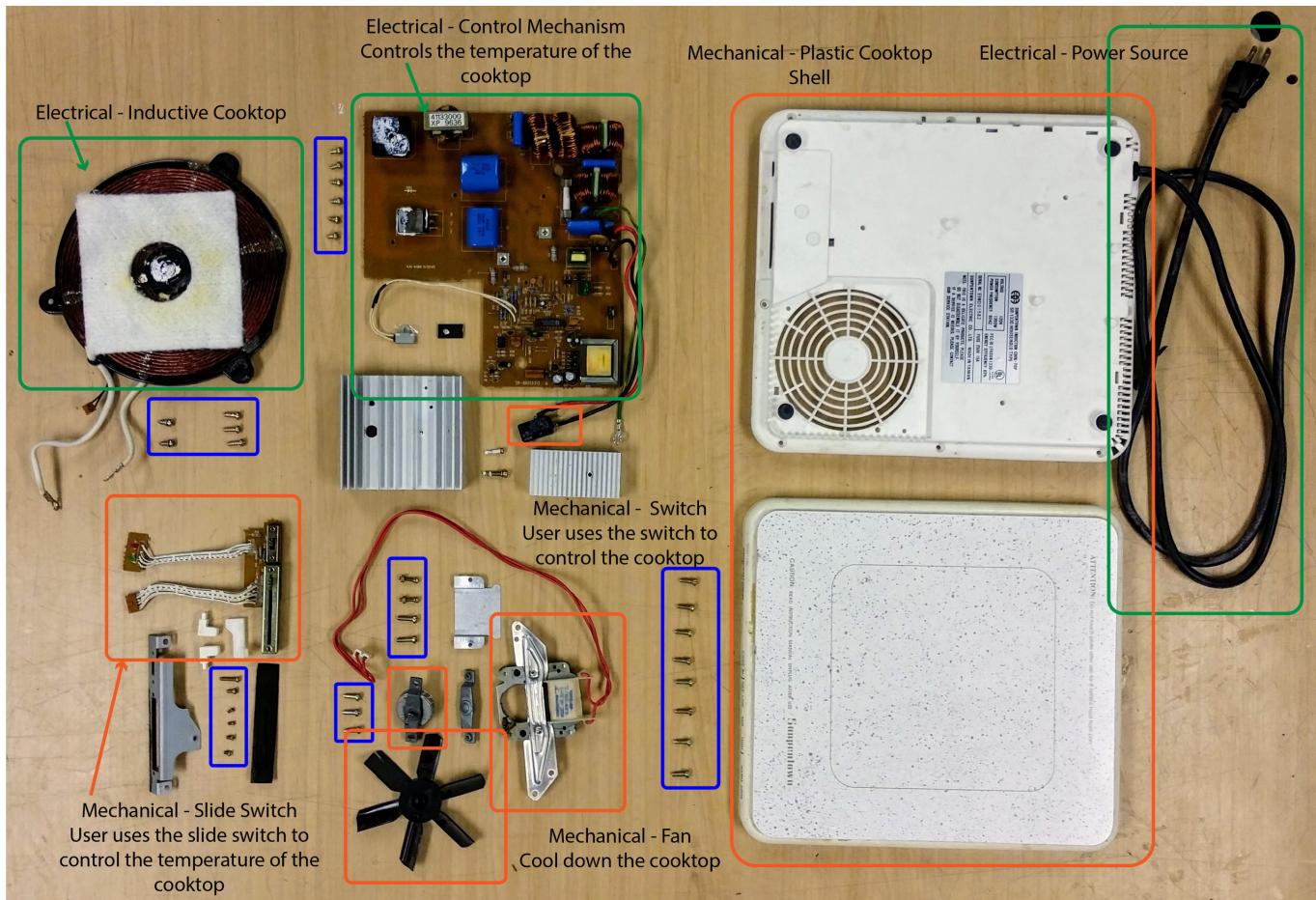
SAMPLE ROBOT DISSECTION

As an example, an induction cooktop dissected.



Part 1 - Remove all components, Lay items on a table & Take a Picture

Part 2 - Identify the type of component (Mechanical or Electrical or fasteners), Identify the Component



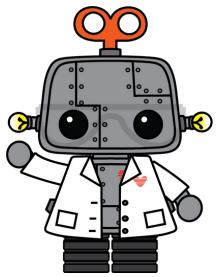
Part 3 - Hack & Improve



Have some questions?
email - kay@tinkertherobot.com

Name

Date



ROBOT DISSECTION

Use this sheet to submit a work sample to your teacher



WHAT DID YOU DISSECT?

What did you dissect?

Why did you pick this item?

PROJECT DETAILS

What did you do in the project?

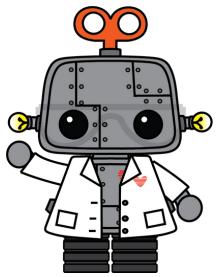
What did you learn?

NOTES

PICTURE OF BUILD

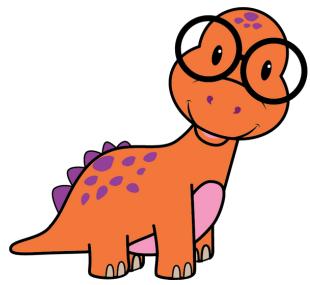
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ROBOT DISSECTION

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WHAT DID YOU DISSECT?

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PROJECT DETAILS

PICTURE OF BUILD

