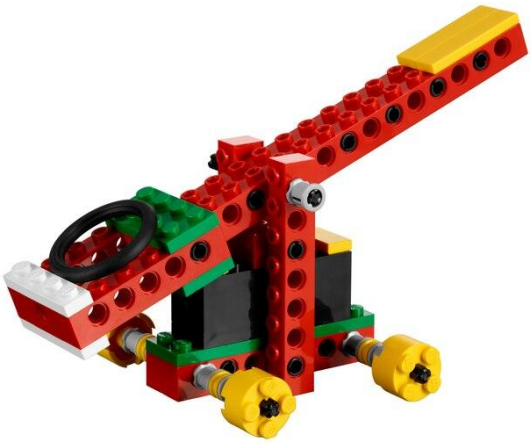
# Lego Machines | Strand: Engineering | Skill: Beginner



**STRAND:**
Engineering

**FUTURE READY SKILLS:**

- Complex Problem Solving
- Critical Thinking
- Creativity
- Coordinating with Others
- Emotional Intelligence
- Judgment and Decision Making

CREATED: 4/2019 | REVIEWED: 4/2020
**AUTHOR(S):** Sarah Robinson, Highlands SD
Implementation shown: **EARLY CHILDHOOD**

**RESOURCE LIBRARY TOOL(S):** N/A
OTHER: LEGO Early Simple Machines Set, BrainPOP! Subscription

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**OVERVIEW:** Students will be able to observe, investigate, and create simple machines using the LEGO Early Simple Machines Set.

**ADAPTATION:** This pathway can be adapted for different levels of student ability based on their prior knowledge of simple machines. Collaborative groups could help students who are struggling with concepts help each other.

**Rationale**
To introduce students to simple machines and to discover mechanical principles by exploring, investigating, and solving tasks.

**Essential Questions:**

- How do simple machines work?
- How can I create a simple machine?
- How can I build a simple machine to solve a problem?

**PATHWAY FOLDER OF RESOURCES :**

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**1) SIMPLE MACHINES, 80 mins**

Students will learn what a simple machine is.

**2) MACHINE SELECTION, 40 mins**

Students are able to identify different kinds of simple machines and choose the best simple machine in a given situation.

**3) MACHINE BUILD, 80 mins**

Students will create and identify simple machines with LEGO.

**4) PURPOSE BUILD, 80 mins**

Students will create simple machines using LEGO to solve real-world problems.

# ACTIVITY 1: SIMPLE MACHINES

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|---|---|---|
|  **80 MINS**  **ONLINE** | **MATERIALS or RESOURCES:**<br>• Simple machine books<br>• Brain POP! | **LEARNING GOALS:**<br>**Students will be able to...**<br>• Discuss what a simple machine is.<br>• Identify pulleys, levers, gears, inclined planes, and wheels and axles. |

**ACTIVITIES:**

1. Ask students what they think a simple machine or a machine is.

2. Use this Brain POP! Simple Machines video (or this one if you don't have a Brain POP! subscription) to help explain what a simple machine is.

3. Use this Brain POP! Lever video (or this one if you don't have a Brain POP! subscription) to help explain levers to students.

4. Use this Brain POP! Pulley video (or this one if you don't have a Brain POP! subscription) to discuss pulleys.

5. Use this Brain Pop! Wheel and Axle video (or this one if you don't have a Brain POP! subscription) to help students understand a wheel and axle.

6. Use this Brain POP! Gears video (or this one if you don't have a Brain POP! subscription) to explain gears.

7. Use this Brain POP! Inclined Plane video (or this one if you don't have a Brain POP! subscription) to explain inclined planes.

8. Let students explore books about simple machines.

9. A great resource you could purchase on Teachers Pay Teachers could be Little Learners Science: All About Simple Machines to enhance your students' learning and create visuals for them.

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# ACTIVITY 2: MACHINE SELECTION

| | | |
|---|---|---|
| **40 MINS**<br><br>**ONLINE** | **MATERIALS or RESOURCES:**<br><br>• Brain POP! Subscription | **LEARNING GOALS:**<br><br>**Students will be able to...**<br>• Correctly identify simple machines.<br>• Choose the best simple machine to help in a given situation. |

**ACTIVITIES**:

1. Teach class how to play Simple Machines Game on Brain POP!. This will give students some more ideas on how to choose the best simple machine to solve a problem. **Note: BrainPOP! Subscription is necessary for this activity.**

# ACTIVITY 3: MACHINE BUILD

| | | |
|---|---|---|
| **80 MINS**<br>**ONLINE** | **MATERIALS or RESOURCES:**<br>• LEGO Early Simple Machines Set | **LEARNING GOALS:**<br>**Students will be able to...**<br>• Create simple machines with LEGO.<br>• Identify different simple machines they have created. |

**ACTIVITIES**:

1. Review simple machines with students.

2. Use the LEGO Early Simple Machines Set to let students create Simple Machines.

3. Establish rules for groups as they work in each LEGO set. For example: being kind, working together, being responsible.

4. Use the LEGO Early Simple Machines Cards to guide students as they create simple machines.

5. When students are finished, ask them to identify some of the simple machines they built.

# ACTIVITY 4: PURPOSE BUILD

| | | |
|---|---|---|
| **80 MINS**<br>**ONLINE** | **MATERIALS or RESOURCES:**<br>• LEGO Early Simple Machines Set | **LEARNING GOALS:**<br>**Students will be able to...**<br>• Work collaboratively to create their own simple machines.<br>• Work collaboratively to create simple machines guided by directions to solve a problem. |

**ACTIVITIES**:

1. Review simple machines with students.

2. Use the LEGO Early Simple Machines Set to let students create Simple Machines.

3. Let students use the legos to create their own simple machines. Try to have them build each of the different kinds of simple machines using the LEGO.

4. Then, give students LEGO Challenges to build a simple machine that would help solve a problem.

5. Here are the LEGO Early Simple Machines Lesson Plans to guide those activities in helping students solve real-world problems.

## CONTACT INFORMATION

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School and School District: Highlands SD

**Feel free to contact us with any questions or suggestions, or to share your students' creations. We would love to see them!**

**PATHWAY FOLDER OF RESOURCES :**

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