

T

Tinker

3

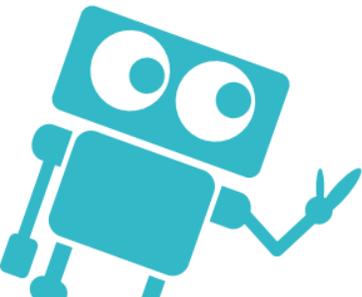
Points

K'NEX

Create a K'NEX Creature

Create a creature with K'NEX pieces. What is your creature called?

MackinMaker



T

Tinker

3

Points

Materials:

- K'NEX Classroom Connection
-

Quick Start:

1. Gather K'NEX pieces.
2. Will your creature be mostly one color or multi-colored? Does your creature have eyes? Legs? Arms? How many? Think through how your creature will get around and accomplish tasks.
3. Can your creature stand by itself? Try to make it stand on a surface without support.

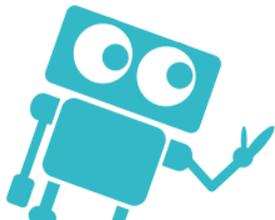
Hints and Tips:

If you are new to using K'NEX, it might help to start by making sure you know how to connect the pieces and break them apart. To attach a rod to a connector, line the rod up on top of an open space on the connector and push down until the rod snaps into place. Connect the open slots on the blue and gray pieces to build in 3D.

Extended Challenges

English/Language Arts: Write a story with the creature as the main character. Add in illustrations and/or share with a friend if possible.

Science: Instead of a creature, research and build a real animal.



A purple rounded square containing a white letter 'S'.

S

Skill-Up

A purple rounded square containing a white number '8'.

8

Points

K'NEX

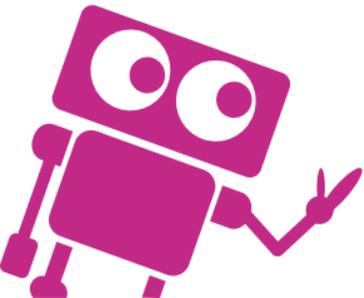
Connect K'NEX

A decorative starburst graphic in the top right corner of the purple box, composed of several overlapping triangles in shades of purple.

Build the following shapes
using K'NEX: Square,
Rectangle, Triangle,
Parallelogram, Octagon,
Cube, and Pyramid.

The MackinMaker logo, featuring the word 'Mackin' in black and 'Maker' in teal, set against a white rounded rectangular background.

MackinMaker



S

Skill-Up

8

Points

Materials:

K'NEX Classroom Connection

Quick Start:

1. Gather K'NEX pieces.
 2. Do you know how to connect and disconnect K'NEX pieces? Experiment until you figure out the best ways to do it.
 3. Start building to see if you can make all the shapes on the list. Are there any other shapes you can build?
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Hints and Tips:

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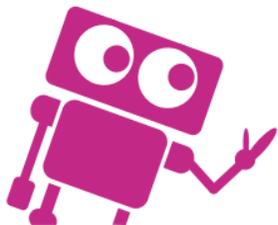
- Start with building a square and work your way down the list with each successful shape. How can you use what you learned from making the first shape to make the next ones?
-

Extended Challenges

Math: Let's practice our shape recognition!

Take turns making shapes and naming them with a friend or an adult. Can you make a tessellation or a pattern instead?

Art: Combine multiple shapes to make a design.



D

Design

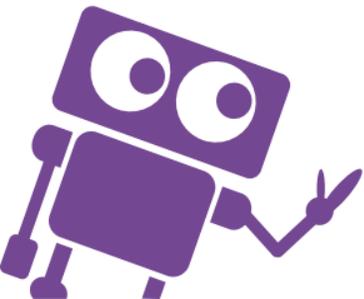
13

Points

K'NEX K'NEX Habitat

Create a structure for an animal's habitat at a zoo.

MackinMaker



D

Skill-Up

13

Points

Materials:

- K'NEX Classroom Connection
 - Pencil
 - Paper
-

Quick Start:

1. Gather K'NEX pieces. What animals do you normally see at the zoo? What animal will you make a habitat for?
2. What does the animal need in its habitat to survive? Make sure you include all of the necessary parts.
3. Build the habitat with your K'NEX!

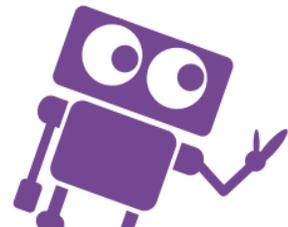
Hints and Tips:

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 - Feeling stuck? Look through the instruction book for some making inspiration.
-

Extended Challenges

English/Language Arts: Create the setting from a story you have recently read.

Social Studies: Create a prototype (or model) of your own home or a dream home!





G

Global



17

Points

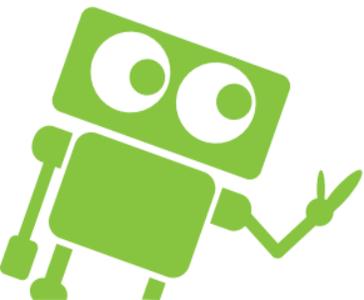
K'NEX

Prototyping with K'NEX

Make a prototype, or a model, of an invention that solves a problem or inconvenience in your life.



MackinMaker



Materials:

- K'NEX Classroom Connection
 - Pencil
 - Paper
-

Quick Start:

1. Gather K'NEX pieces and get a paper and pencil so you can brainstorm.
 2. Brainstorm on paper and/or in a small group. What could you create that could solve a problem? Is there anything that you dislike doing or that is difficult to do in your daily life at home or at school? Once you decide, draw a sketch to help plan out your creation.
 3. Use the K'NEX pieces to make a prototype of the invention.
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Hints and Tips:

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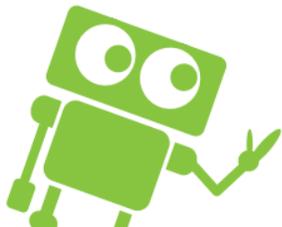
the connector and push down until the rod snaps into place. Connect the open slots on the blue and gray pieces to build in 3D.

- It can help to think through daily routines or chores that you have, or daily activities that you participate in.
 - Feeling stuck? Look through the instruction book for some making inspiration.
 - *Teacher note: If working with younger students, it might be helpful to narrow down the invention (i.e. something to help you clean your room, something to help accomplish tasks like homework or getting ready) and/or brainstorm together.*
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Extended Challenges

Social Studies: Can you think of something that might help other people? Try to make something that could solve a local or worldwide problem.

English/Language Arts: Write about what your invention does and why you built it.

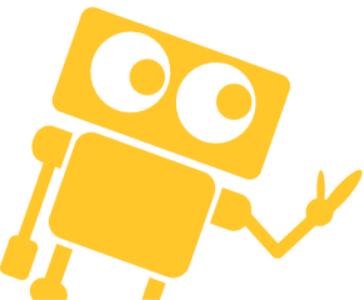


I

Innovator

24

Points



K'NEX K'NEX Spins

Using K'NEX, build something that has a piece that turns, or spins. Can you build a Ferris wheel? Or a wind turbine? What other objects rotate?

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Materials:

- K'NEX Classroom Connection
 - Pencil
 - Paper
-

Quick Start:

1. Gather K'NEX pieces. Begin brainstorming objects you might make that spin. What objects could be created using K'NEX?
 2. Build your spinning object.
 3. Test your creation. Does it work? If not, is there a way to build your spinning component so it is not blocked by other pieces or objects?
 4. Improve your spinning object. Can you make it turn faster or more smoothly? Can you make the part that spins larger in size?
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Hints and Tips:

- If you are new to using K'NEX, it might help to start by making sure you know how to connect the pieces and break them apart. To attach a rod to a connector, line the rod up on top of an open space on the

connector and push down until the rod snaps into place. Connect the open slots on the blue and gray pieces to build in 3D.

- Feeling stuck? Look through the instruction book for some making inspiration.
 - *Teacher note: If working with younger students, you may want to have them start simply by having students place the circular connector piece onto the rod. Then, they can add more pieces onto their creation and see how it affects their spinning object.*
 - *Teacher note: Discuss the engineering process with students. Walk them through planning, building, testing, and improving their creations.*
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Extended Challenges

Science: Can you make another object that spins? There are so many wonderful solutions to this challenge!

Math: What shapes work best for creating objects that rotate? Talk about it and experiment using your K'NEX!

