



## 2014 Jr.FLL THINK TANK<sup>SM</sup> Challenge



### Think About It

You learn new things every day. Maybe you learned a new vocabulary word or a math formula today. Maybe you learned what a cell looks like, how to read musical notes, or the rules of a new game. Sometimes a person teaches you some new information, but sometimes you use a tool to help you learn. A learning tool could be an object – like a book or a set of blocks. A learning tool could also be digital – like a computer program or website. Certain learning tools can make learning easier or more fun.

#### Think about some tools you use to learn new things.

**Books** - You can learn about what dinosaurs ate by reading a book.

**Videos** - You can discover stars and planets that are far away by watching a video.

**Science equipment** - You can see things too small for your eyes by looking through a microscope.

**The internet** - You can learn about a place you have never gone before by looking at a map on the internet.

**Exhibits** - You can learn about how boats float by building a model in a museum exhibit.

#### Have you ever thought about...

- How and why do you use maps?
- How does something as simple as a pen or a pencil help you learn?
- What could you learn at the aquarium or the zoo?
- What could a calculator help you learn?
- Have you ever learned something from a recipe or a cooking show on TV?
- Have you ever learned something from a website?

Think about the things you like to do. Did you ever use a learning tool to help you learn more about the things you like?

#### Your Jr.FLL Challenge this season is to:

- Choose a place where you could learn something.
- Choose a specific tool you could use to learn something and find out more about it.
- Then show what you learned through your LEGO® model and Show Me poster.



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# Learn About It

Your team will become detectives and researchers to gather all the information you can about a place and a learning tool that you pick. Make sure you pick a learning tool that interests your whole team, because you will learn a lot about it!

## Identify a Place and a Learning Tool

First, choose a place where you or someone like you could learn. Choose a place from the list below. Then, choose a learning tool that could be found in that place. You may choose one of the examples below, or add your own ideas to the list. Choose one place and one learning tool you could use in that place.

Places	Learning Tools
<b>Activity center (like a band room, art studio, or karate school)</b>	<ul style="list-style-type: none"><li>● Sheet music to learn a new song</li><li>● Paint to learn about complimentary colors</li><li>● Balance beam to learn about movement and balance</li></ul>
<b>Classroom</b>	<ul style="list-style-type: none"><li>● Blocks to make graphs and patterns, or practice counting</li><li>● Globe or map website to learn the names of different countries and capitals</li><li>● Chalkboard or smart board to practice writing new letters and words</li><li>● Computer program to learn how to record your own podcast</li></ul>
<b>Home</b>	<ul style="list-style-type: none"><li>● Clay or Play-doh to form letters, numbers, or math problems</li><li>● Measuring cup to learn about fractions</li><li>● Magazine to learn about writing, science, animals, or your favorite hobby</li></ul>
<b>Library</b>	<ul style="list-style-type: none"><li>● Books, magazines, and newspapers to learn about almost anything</li><li>● Dictionary or thesaurus to learn the meaning of new words</li><li>● CDs or MP3 players to learn by listening</li></ul>
<b>Museum</b>	<ul style="list-style-type: none"><li>● Hands-on display to learn about tsunamis, train engines, or art</li><li>● Telescope to locate constellations and planets in the sky</li><li>● Tablet computer to learn more about an exhibit</li></ul>
<b>Natural area (like a park forest, prairie, or desert)</b>	<ul style="list-style-type: none"><li>● Compass to learn about navigation</li><li>● Field guide to learn about the plants and animals you see</li><li>● Maps to find your way while hiking, walking, or skiing</li><li>● Magnifying glass to learn what bugs or worms look like up close</li></ul>
<b>Playground</b>	<ul style="list-style-type: none"><li>● Playground equipment to learn about physical fitness, or study shapes and angles</li><li>● Thermometer to learn about temperature and weather</li></ul>

## Research It

What do you already know about this place and the learning tool?

What else would you like to know? You might want to ask questions like:

- Who usually learns in the place your team chose?
- Do lots of people learn there, or only some?
- What information could a person learn from the learning tool you picked?
- How does it work?
- Who invented it and when?
- Has it changed over time since it was invented?

## Find resources to learn more about your place and your learning tool

- Try books, websites, or interviews.
- Try asking your family, friends, your teacher, or other people you may know.
  - How often do they go to the place you picked?
  - Have they ever learned something from the learning tool you picked?
  - Do they use the learning tool to teach somebody else?
  - Can they tell you where to learn more?

Bring together all the information you find about your learning tool and discuss it with your team. Do you feel like you know your learning tool pretty well? Alright then, let's build it!



See the Jr.FLL Team Meeting Guide for worksheets to organize your team's research.



## Build It

It is time to build your LEGO model. Show the place and the learning tool you chose using LEGO elements.

- Can you show the learning tool and how it works?
- How would a person use your learning tool?
- Can you show the kind of information the learning tool could teach you?

Something on your model must move using a LEGO motor. (Need a hint? Remember, people move all the time! If your learning tool does not move by itself, could you show a person using your learning tool?) Here are some examples:

- Show someone adding a block to the graph they created in a classroom.
- Show the mercury rising in a thermometer at the playground.
- Show a train engine moving down a track in an exhibit at a museum.
- Show someone taking a book down from a shelf in the library.
- Show someone playing an instrument in a band room.
- Show the needle on a compass moving to show which way is north in the forest.

## Here are the rules for your model:

- Build your team's model using your imagination (not a kit with instructions).
- Build your model out of LEGO elements only. You can use any LEGO bricks, figures, or moving parts you need.
- You must make something move on your model using a LEGO motor. You may use any LEGO motor.
- You must include one simple machine – a ramp, lever, pulley, gear, wheel, axle, screw, or wedge.
- Your model must be no bigger than 15 inches by 15 inches. A LEGO XL baseplate might make it easier to keep your model the right size.
- Do not paint or decorate the LEGO elements in any way.



# Share It

Your team has learned so much! Now it's time to share what you have learned so others can learn about it too.

## Show It

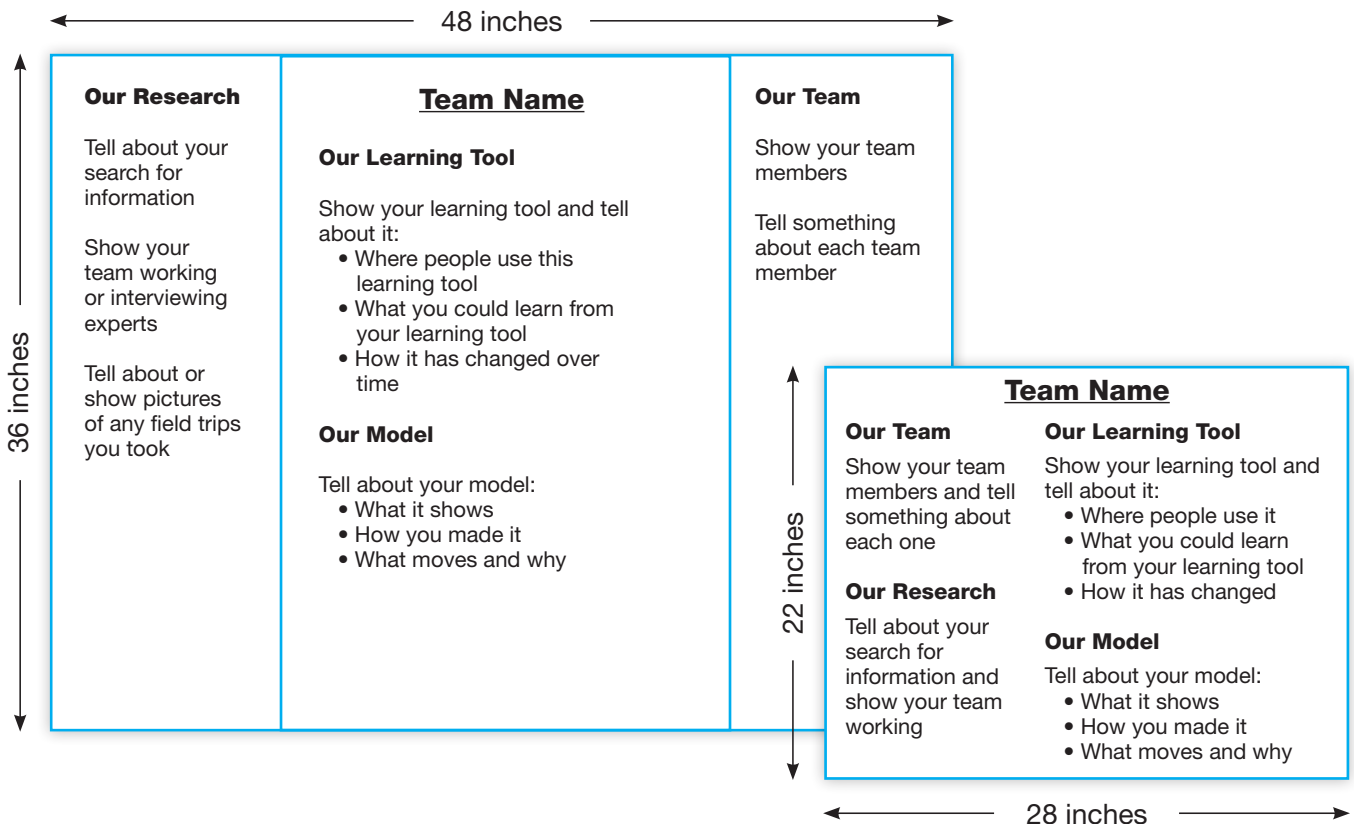
Create a *Show Me* poster to show your team and what you have learned. Your *Show Me* poster will help you teach others about your team and your learning tool – and show them how hard you worked. Your poster should show:

- The learning tool you chose and what you learned about it.
- The places you hunted for answers and any people who helped you learn more.
- What your model represents and how you made it.
- Your team. Include something nice about each team member and coach.

### Here are the rules for your *Show Me* poster:

- Use a poster board that is either 22 inches by 28 inches (flat) or 36 inches by 48 inches (tri-fold) – no bigger.
- Use words, drawings, photos, or small objects attached to the poster to tell about what your team learned.
- Tell about your model - including what part moves and how you used a simple machine.

### Lay out your poster in sections like this:



## Present It

There are many ways for your team to share what you have learned. Pick the right one for your team.

You could:

- Invite your parents, guardians, teachers or people who helped your team to a special team meeting. Present your model and *Show Me* poster to the audience.
- Attend a Jr.FLL Expo if one is available in your area. An Expo is a special type of Jr.FLL event where you will talk with Reviewers and other teams. All teams attending will receive an award at the end.
- Participate in a virtual Expo experience on the Jr.FLL Online Showcase at: <http://jrflshowcase.usfirst.org>. Create a team profile and share your learning tool with other teams.



## Just for Coaches

You may also use these helpful documents which are provided to registered teams on the Coach's Portal at <http://jrflshowcase.usfirst.org/>.

- Find suggestions on how to organize your team, your role as a Coach, and the season schedule in the Jr.FLL Coaches' Manual.
- Find meeting suggestions and optional worksheets in the Jr.FLL Team Meeting Guide.
- Find websites, books, and vocabulary words to help your team begin their research in the Coaches' Resources document.
- Still have questions? Email [jrflteams@usfirst.org](mailto:jrflteams@usfirst.org) for Team Support.

