



## **FIRST® LEGO® League Jr. Multimedia Connections**

Below is a session-by-session list of Multimedia Connections for the BOOMTOWN BUILD<sup>SM</sup> Challenge. These resources include links to websites, videos, building instructions, and other online tools related to the content of each session.

Consider sharing some or all the resources during team meetings, and/or encourage your team to explore them between sessions (with permission and supervision from a parent or guardian). Before sharing any of the resources, be sure to preview them in order to familiarize yourself with the content and to make sure they are appropriate for the ages and ability levels of your team members.

***Note:** Points of view or opinions contained within the resources referenced in the Multimedia Connections do not necessarily represent the official position or policies of FIRST® or the LEGO® Group.*

### **General Resources about Architecture for All Sessions**

- Explore the [archKIDecture](#) website for fun stories about architecture, hands-on architecture projects, kid-friendly books about architecture, and more.
- Browse the [What Does an Architect Do?](#) webpage from Wonderopolis to learn more about what it takes to be an architect.
- Watch the [I Want To Be An Architect! — Kids Dream Jobs — Can You Imagine That?](#) video (5 minutes) from Radical Jr. for a fanciful look at what it might be like if a kid were an architect.
- View the [I Am an Architect — Discover Architecture](#) video (3 minutes, 12 seconds) from YKK AP for a fun rap by architects and architectural students about the field of architecture.
- For detailed background information on what architects do, how to become one, how much they get paid, and more, visit the [Architects](#) webpage from the U.S. Bureau of Labor Statistics.

### **Session 1: Welcome to Boomtown**

- View the [LEGO® Education WeDo 2.0](#) video (1 minute, 33 seconds) and [LEGO® Mini-Builds](#) video (1 minute, 31 seconds) to learn more about these topics.
- Use the [Street View](#) feature of [Google Maps](#) to explore buildings in your own community and around the world.
- Download the [WeDo 2.0 Teacher Guide and Preparation Materials](#) from the LEGO Education website. For more WeDo 2.0 resources, visit the [LEGO Education WeDo 2.0 Support](#) webpage.



## Session 2: Get Your Building Site Ready

- Access the building instructions for the BOOMTOWN BUILD Inspire Model, and [see a video of it in action](#), on FIRST® LEGO® League Jr.'s [Inspire Set](#) webpage. To build the hand-operated crane for this session, complete all the steps in Book 1 and Book 2 as well as Steps 1–6 in Book 3.  
*Note: The LEGO elements for the Inspire Model can be found in your BOOMTOWN BUILD Inspire Set in the bags labeled “1,” “2,” “3,” and one unlabeled bag..” If you got excited and already opened all the bags, you can find a list of all the LEGO elements that are part of the Inspire Model (the LEGO crane/elevator) on the last page of Book 3 of the building instructions. The children will use all the elements in Bag 1, Bag 2, and along with some elements from Bag 3 and one unlabeled bag, to build the hand-operated crane. They will have some unused LEGO elements from Bag 3, which they should place into a zip-top bag to be saved until Session 4 when they will build the elevator attachment.*
- Download the [WeDo 2.0 Teacher Guide and Preparation Materials](#) from the LEGO Education website. For more WeDo 2.0 resources, visit the [LEGO Education WeDo 2.0 Support](#) webpage.
- If your team would like to build this session’s suggested WeDo 2.0 model offline, download the [Spy Robot building instructions](#) (PDF).

## Session 3: Be an Engineer

- Download a [Reader’s Theater edition of Iggy Peck, Architect](#) (PDF), and visit [Questioners.com](#) to download more free activities and resources featuring Iggy Peck and the other Questioners.
- For an introduction to engineering, watch the [Intro to Engineering](#) video (2 minutes, 42 seconds) from NASA for Kids or the [What Is Engineering?](#) video (4 minutes, 17 seconds) from The University of Newcastle, Australia.
- Visit the [Design Squad](#) website from PBS Kids to find videos, games, and projects about engineering for youth, including information about the various parts of the engineering design process.
- Check out the [Architecture Adventure: Crash Course Kids #47.2](#) video (4 minutes, 26 seconds) from Crash Course Kids to explore how architects use the engineering design process.
- View the [Session 3 Example Buildings](#) (PDF) for a few examples of two-floor buildings (and even taller buildings!) built with LEGO elements from the Inspire Set.
- Access the building instructions for the BOOMTOWN BUILD Inspire Model on FIRSTLEGO League Jr.’s [Inspire Set](#) webpage. Follow the steps on pp. 19–23 in Book 3 of the building instructions to convert the hand-operated crane into a WeDo 2.0-powered crane. Note that the children should not build the elevator attachment yet (as shown on pp. 6–17), as they will do this in Session 4.  
*Note: The children will need the crane in future sessions. However, they should turn it back into the hand-operated version before storing it. They can do this by*



undoing the steps on pp. 19–23 in Book 3 of the building instructions.

#### **Session 4: Make It Accessible**

- Explore the [Make Your Buildings More Accessible](#) webpage from the National Disability Authority of Ireland to learn about ways to make and maintain an accessible building.
- View the [Session 4 Example Doors](#) (PDF) for a couple examples of automatic doors — with and without the Motion Sensor — built with LEGO elements from the WeDo 2.0 Core Set.
- Access the building instructions for the BOOMTOWN BUILD Inspire Model on *FIRST* LEGO League Jr.'s [Inspire Set](#) webpage. Follow the steps on pp. 6–17 in Book 3 of the building instructions to convert the hand-operated crane into a hand-operated elevator.  
**Note:** The LEGO elements needed to transform the LEGO crane into an elevator came in the bag labelled “3” in the Inspire Set box. In Session 2, the children needed only some of the elements from Bag 3 and were directed to put the remaining elements in a zip-top bag. If you do not have these elements set aside, use the [Elevator Attachment Element Overview](#) (PDF) from the [Inspire Set](#) webpage to identify the elements needed for the elevator.
- If your team would like to build one of this session’s suggested WeDo 2.0 models offline, download the [Flex building instructions](#) (PDF) and/or the [Floodgate building instructions](#) (PDF).

#### **Session 5: Make It Environmentally Friendly**

- For a comprehensive guide to environmentally friendly design, visit the [Sustainable Facilities Tool](#) website from the U.S. General Services Administration. Watch the [Welcome to SFTool](#) video (1 minute, 45 seconds) for an overview of the website’s Learn, Plan, Explore, Procure, Assess, and Share features.
- Visit the California Academy of Science’s [Efficient Building Design](#) webpage to learn some of the ways that the museum incorporates environmentally friendly design.
- Explore various ways to improve the energy efficiency of a home on the [Energy-Efficient Home Design](#) webpage from the U.S. Department of Energy.
- Check out the [Stonyfield’s Newest Visitors Hopped Over](#) blog post to learn how the grounds around the Stonyfield factory in Londonderry, New Hampshire, are providing important habitat for the endangered New England cottontail rabbit.
- Read the [Hualapai Uses Discarded Waste to Create “Earthship.”](#) [Environmentally-Friendly Office Space](#) article to learn how the Hualapai Tribe of Arizona used discarded tires and aluminum to construct its environmental offices.
- If your team would like to build this session’s suggested WeDo 2.0 model offline, download the [Cooling Fan building instructions](#) (PDF).



### Session 6: Make It Durable

- View the [Making Buildings Better Withstand Earthquakes — Science Nation](#) video (4 minutes, 54 seconds) from the National Science Foundation to learn how scientists use shake tables to explore how buildings are affected by simulated earthquakes.
- Check out the [Earthquake-proof Buildings](#) webpage from Imagination Station and the [Building for the Big One](#) webpage from the Exploratorium for information and videos about how engineers design buildings to withstand earthquakes.
- Visit the interactive [Forces of Nature](#) website (Flash required) from National Geographic to explore the science behind earthquakes, volcanoes, tornadoes, and hurricanes through maps, photos, and 3-D animations.
- Watch the [Indestructible House — Evolutionary Architecture](#) video (3 minutes, 50 seconds) from Naked Science to learn how one architect designed a house to withstand earthquakes, wildfires, and floods.
- For detailed background information on how to design buildings to withstand natural disasters such as earthquakes, hurricanes, tornadoes, wildfires, tsunamis, and more, check out the [Natural Hazards Mitigation](#) website from the National Institute of Building Sciences.
- If your team would like to build this session's suggested WeDo 2.0 model offline, download the [Robust Structures building instructions](#) (PDF).

### Session 7: Keep Exploring

- Access the building instructions for the BOOMTOWN BUILD Inspire Model on FIRST LEGO League Jr.'s [Inspire Set](#) webpage. Follow the steps on pp. 17–23 in Book 3 of the building instructions to convert the hand-operated crane or elevator into a WeDo 2.0-powered crane or elevator.

### Sessions 8 and 9: Create Your Boomtown Build

- Access the building instructions for the BOOMTOWN BUILD Inspire Model on FIRST LEGO League Jr.'s [Inspire Set](#) webpage.
- Consider downloading [LEGO Digital Designer](#) — free, 3D-modeling software (for Windows PC XP and higher and Mac OS X 10.10 and higher) that allows users to design and build 3D models using virtual LEGO pieces. Let the children know that they can use the software to help them envision what their Boomtown Build might look like in 3D.
- Visit the LEGO [Pick a Brick](#) online catalogue to search for, view, and purchase individual LEGO pieces. This catalogue is useful for acquiring new pieces and replacing lost pieces.
- Explore free, online tools such as [Photoshop Express Editor](#) (Flash required) or [Google Photos](#) to edit any photos you take for the team's *Show Me* poster.
- Download the [WeDo 2.0 Teacher Guide and Preparation Materials](#) from the LEGO Education website. For more WeDo 2.0 resources, visit the [LEGO Education WeDo 2.0 Support](#) webpage.



### **Sessions 10 and 11: Make Your *Show Me* Poster**

- Watch the [Sessions 10 and 11: The \*Show Me\* Poster](#) video (42 seconds) from *FIRST* LEGO League Jr. for an overview of Sessions 10 and 11. A [Spanish version](#) is also available.
- To see some examples of posters from past *FIRST* LEGO League Jr. seasons, search [Google Images](#) for [FIRST LEGO League Jr. posters](#).
- Try a free, collaborative whiteboard website such as [Padlet](#) if your team would like to design their poster online.

### **Session 12: Prepare to Share**

- Share *FIRST*'s [What Happens at a FIRST LEGO League Jr. Expo?](#) video (1 minute, 47 seconds) with your team members to give them a glimpse of what happens at an Expo.
- Search for local *FIRST* LEGO League Jr. events on the [Events and Teams in My Area](#) webpage.
- Share photos of your team's BOOMTOWNBUILD and *Show Me* poster via social media with #FIRSTLEGOLeagueJr and #BOOMTOWNBUILD. Encourage your team to browse the models and posters that other teams have shared as well!



Notes: