Welcome to FIRST®!

Whether you’re a classroom teacher, a parent, or a coach/youth leader, we know the disruptions to learning you’ve experienced this year have been an unprecedented challenge. Students crave emotional connections and active learning opportunities; worksheets just don’t cut it. So how do you engage students in a remote learning environment, when education is so much more than teaching facts and figures?

The FIRST Education team developed this 12-session curriculum series to be adaptable to many remote learning environments, including virtual summer camps, team meetings, and parent-child at-home learning. Throughout these lessons, you’ll engage students in developing their STEM skills, creativity, problem-solving, and confidence-building.

We kick off with an exploration of the FIRST Core Values: Discovery, Innovation, Impact, Teamwork, Inclusion, and Fun. They are at the heart of everything we do at FIRST to create meaningful STEM experiences with connections to social and emotional learning.

We hope this offers a fun and meaningful way to engage your students. Let us know what you and your students think of this series by sending a note to FIRSTeducation@firstinspires.org.

Sincerely,

Libby Simpson, Director, FIRST Education

ACTIVITIES OVERVIEW
Each activity is developed for specific age and grade-level bands and align with FIRST programming. The average times to complete are listed below.

**FIRST® LEGO® League: Discover** – Grades PreK-1; Ages 4 to 6
Activity time 30 - 60 minutes

**FIRST® LEGO® League: Explore** – Grades 2-4; Ages 6 to 10
Activity time 45 - 90 minutes

**FIRST® LEGO® League: Challenge** – Grades 4-8, Ages 9 to 16
Activity time 60 - 120 minutes

**FIRST® Tech Challenge and FIRST® Robotics Competition** – Grades 7-12; Ages 12 through 18
Activity time 60 - 120 minutes
WEEKLY TOPIC SUMMARY

- Week 1 – Explore FIRST Core Values.
- Week 2 – Use coding and programming to solve a problem or learn a new programming language.
- Week 3 – Create a design or use computer aided design software to show your solution to a problem.
- Week 4 – Dive into the physical components of robots exploring simple machines, electronics or mechanics.
- Week 5 - Use creative resources to solve an engineering design challenge.
- Week 6 – Put it all you have learned to work in a culminating activity or mini capstone project.

The series will repeat for an additional 6-weeks with new activities using the same topics.

HOW TO USE FIRST AT HOME

The activities presented have been created to support the continuation of STEM learning and skill development. These can be combined with other activities to deepen and extend learning or completed as a single project. They can be completed by individuals, groups or teams. The incorporation of the core values, especially FUN, in each activity allows you to bring the FIRST experience and learning to life at home!

STRATEGIES FOR USE

The educational materials contain two parts: the lesson plan and design brief. The lesson plan is for the parent, teacher or coach to use in planning and facilitating the activity.

The design brief is for the student(s) completing the activity. In presenting this content to your students, you should take on the role of facilitator and allow your students to access the material, ask questions and present their solutions.

Our partners at LEGO® share strategies for best teaching practices at home.
PRESENTATION OF CONTENT

The teacher lesson plan contains the following elements:

<table>
<thead>
<tr>
<th>Activity summary</th>
<th>Guidance Set-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>suggested age range, grade level and FIRST program connection</td>
<td>notes for specific instructions on delivering content</td>
</tr>
<tr>
<td>Activity outcomes</td>
<td>Student or team actions</td>
</tr>
<tr>
<td>states knowledge, skill and abilities students should demonstrate upon completion</td>
<td>overview of student actions</td>
</tr>
<tr>
<td>Relevance Matrix crosswalks and core value connections</td>
<td>Go Further!</td>
</tr>
<tr>
<td>will show connections to related concepts and highlight core values used</td>
<td>will contain ideas to take learning beyond this activity or connect to other similar types of projects, activities or challenges</td>
</tr>
<tr>
<td>Key Vocabulary</td>
<td>Evidence of Achievement</td>
</tr>
<tr>
<td>highlights important words to share with students during the activity</td>
<td>will have recommendations for measure of success in knowing if the student, group or team has been successful, will also contain information on connecting learning to the FIRST community</td>
</tr>
<tr>
<td>Materials and supplies needed for this activity</td>
<td></td>
</tr>
</tbody>
</table>

The student design briefs are written in an engineering design process format to guide students through the steps in solving the problem or working through the content presented.

The content has the following components for students to explore:

<table>
<thead>
<tr>
<th>Problem Statement</th>
<th>Design Sketch</th>
</tr>
</thead>
<tbody>
<tr>
<td>provides authentic real-world problem that frames the activity</td>
<td>area to sketch design ideas, this can be done outside of the box</td>
</tr>
<tr>
<td>Criteria and Constraints</td>
<td>Reflection Questions</td>
</tr>
<tr>
<td>are the requirements to be successful or limitations on the design</td>
<td>students and teacher reflect on the learning and project activities</td>
</tr>
<tr>
<td>Building the Background &amp; Brainstorming</td>
<td>Go Further!</td>
</tr>
<tr>
<td>some activities will have connected content to build background knowledge or aid in brainstorming</td>
<td>will contain ideas to take learning beyond this activity or connect to other similar types of projects, activities or challenges</td>
</tr>
</tbody>
</table>

This content is designed using project-based learning design elements.

ASSESSMENT AND SHARING

If you need to assess student work, the Evidence of Achievement section will have guidance. Some activities will have the opportunity to make it loud and will connect to FIRST social media. Check the Go Further! Section for that information.

Please let us know what you and your students think of this series by sending a note to FIRSTeducation@firstinspires.org.

FIRST is a global robotics community that prepares young people for the future.

www.firstinspires.org