Guidance for team coaches during COVID-19

September 2020

Version 1

During these uncertain and challenging times, we are committed more than ever to delivering the life-changing experiences *FIRST* LEGO League offers to young people.

Everyone at the IET, LEGO Education and *FIRST* are working hard to anticipate and navigate the uncertainties to ensure we'll be able to provide every participating team a valuable and enjoyable experience, regardless of learning environments and restrictions this season.

Due to the COVID-19 pandemic, we anticipate that you will encounter unique challenges during the RePLAY and PLAYMAKERS season, and we are here to provide support and guidance. This guide provides a series of options to accommodate you in various scenarios this season and allow your team to continue to get the most out of their experience.

This guide is designed to provide suggestions and options, but it is intentionally not prescriptive; considerations for what is best for your local situation should be prioritised. **Local health and safety regulations and guidance should precede any of the recommendations in this guide**.

We would also like to emphasise that this guide will adapt and change as the global and national situation progresses.

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01. TEAM CATEGORIES – HOW CAN YOUR TEAM MEET?

If you work in a school, it is likely that you will be working in some sort of year or class bubble. If you do not work inside a school, it is possible team members will be from different households (bubbles).

Four categories of how teams can meet will be referred to throughout this guide. For each section, we will provide information/ideas on how the team can work through the *FIRST* LEGO League Challenge season. The four categories are:

One Bubble	Pair of Bubbles	Multi-Bubble
All team members are from within one, singular bubble.	Team members are from across two bubbles, ideally with an even split.	Team members are from across several different bubbles.

Remote Bubble
Team members meet remotely [digitally] as they cannot meet in person.
This could apply to any team throughout the season (team members have to isolate, want to hold additional meetings, etc.)
Whilst ensuring you comply to your school or organisation's **Safeguarding** guidance, we also recommend considering the points detailed in **Appendix 3**.

02. SHARING MATERIALS

Follow Local Guidance

Prior to putting a material handling plan in place, it is recommended that you reach out to your school or organisation, as well as local health officials, to determine the guidance for handling shared materials in your area. Whether you are working in class or year group bubbles, your school or organisation will have its own policy and recommendations regarding sharing equipment. **In the first instance ensure you are following those guidelines**.

Sanitising LEGO Equipment

Visit the dedicated LEGO Education webpage for hygiene guidance relating to LEGO and DUPLO elements. This should be **used in addition to any guidance you've been provided by your local health officials** to clean and disinfect your classroom and learning materials: https://education.lego.com/en-gb/support/in-person-steam-resources

Storing Materials

Consider creating a plan that follows policies put in place by your local authority, school or organisation on how to store materials. Examples of potential ways to store them include:

- Recently cleaned materials can be kept in separate boxes with labels that can be changed to indicate the date of cleaning.
- Materials can be separated for use by individual participants and stored in labelled containers, cubbies, or areas.

- Use of equipment can be limited to one group of participants at a time and cleaned and disinfected between use.
- Electronic devices can be cleaned prior to sharing with others.

03.   SAFEGUARDING

We at the IET are fully committed to promoting the safety and wellbeing of children and vulnerable adults.

As part of any *FIRST* LEGO League meeting or session, the **team coach is responsible for the safeguarding** of all of their team members and those engaging with *FIRST* LEGO League. Ensure that your **school or organisation's safeguarding guidelines are followed stringently**. This is especially important if engaging with digital tools and remote video meetings.

Please refer to the **IET's Safeguarding webpage** and policies for an overview of best practice.

04.   INNOVATION PROJECT – RESEARCH & PRESENTATION

The Innovation Project can be easily adapted to suit any of the four team categories.
- Refer to Page 8 of the Engineering Notebook for full details of the Innovation Project challenge.
- Refer to the session plans within the Team Meeting Guide (Pages 10-23) for details of leading the team through the research and presentation for the Innovation Project.

One Bubble
- If possible, provide each team member with a device they can use.   - If team members have to share equipment (e.g. devices, materials for creating props or posters, etc.), consider the **Sharing Materials** section within this guide.

Pair of Bubbles
- Follow the Group Session Layout [Team Meeting Guide - Pages 7, 10-23] for your two bubbles (e.g. Group 1 work as a bubble, Group 2 work as another).   - If possible, provide each team member with a device they can use.   - If team members have to share equipment (e.g. devices, materials for creating props or posters, etc.), consider the **Sharing Materials** section within this guide.   - Depending on your school/organisation **Sharing Materials** and **Safeguarding** guidelines, when groups are required to work as a team (e.g. Introduction and Share Activities; tasks for Session 5, 6 & 12) you could: - Physically share whilst distancing   - Schedule and hold video call meetings   - Record group updates (to show to other group)   - Utilise **digital sharing tools**

Multi-Bubble

- The Group Session Layout [Team Meeting Guide - Pages 7, 10-23] is unlikely to work for this team category.
- Create a plan with the team members at the beginning of the season detailing points such as:
  - What tasks need to be completed?
  - Who will complete them?
  - When will they be completed by?
  - How will you share?
- Depending on your school/organisation **Sharing Materials** and **Safeguarding** guidelines, when team members need to share, consider the following options:
  - Can team members physically share whilst distancing?
  - Schedule and hold video call meetings
  - Record updates (to share with the rest of the team)
  - Utilise **digital sharing tools**

Remote Bubble

- The Group Session Layout [Team Meeting Guide - Pages 7, 10-23] is unlikely to work for this team category.
- Create a plan with the team members at the beginning of the season detailing points such as:
  - What tasks need to be completed?
  - Who will complete them?
  - When will they be completed by?
  - How will you share?
- Depending on your school/organisation **Sharing Materials** and **Safeguarding** guidelines, when team members need to share, consider the following options:
  - Schedule and hold video call meetings
  - Record updates (to share with the rest of the team)
  - Utilise **digital sharing tools**

Innovation Project Related Appendices

- **Appendix 1: Digital Tools**
- **Appendix 2: Accessing Experts Remotely**

05. BUILDING THE LEGO MISSION MODELS

- If working through the session plans within the Team Meeting Guide (Pages 10-23), the building of the Mission Models is incorporated into Sessions 1-4.
- Build instructions are found in the Challenge resources on the **Team Resources webpage**.
- Have team members agree at the start of the season how they will ensure everyone has a chance to build whilst maintaining appropriate distancing and sharing of materials.

One Bubble

- If possible, provide each team member with a device with the relevant build instructions
- Depending on your school/organisation **Sharing Materials** guidelines
  - Can the children build as instructed, ensuring they wash their hands pre and post-session?
  - Should you divide the bags between team members (e.g. Child 1 only has Bag 1)?
- If there are not enough bags for a team member to build during a session, set them a project/robot task. Ensure they have a chance to build in the next relevant session.

Pair of Bubbles

- If possible, provide each team member with a device with the relevant build instructions
- Depending on your school/organisation **Sharing Materials** guidelines
  - Can the children build as instructed, ensuring they wash their hands pre- and post-session?
  - Should you divide the bags between team members (e.g. Child 1 only has Bag 1)?
- If there are not enough bags for a team member to build during a session, set them a task relating to the project/robot. Ensure they have a chance to build next time.
- Depending on your school/organisation **Sharing Materials** and **Safeguarding** guidelines, when groups are required to show how Mission Models work you could:
  - Physically share whilst distancing
  - Schedule and hold video call meetings
  - Record group updates (to show to other group)
  - Utilise **digital sharing tools**

Multi-Bubble

- The Group Session Layout [Team Meeting Guide - Pages 7, 10-23] is unlikely to work for this team category.
- Create a plan with the team at the beginning of the season detailing points such as:
  - How will you distribute the Mission Model Builds (Bags 1-7)?
    - **NOTE:** Large pieces in the unmarked bags will need to be distributed as well
  - Who will build which bags?
  - When will they need to be completed by?
- If there are not enough bags for a team member to build during a meeting, set them a task relating to the project/robot. Try and ensure they have a chance to build next time.
- Depending on your school/organisation **Sharing Materials** and **Safeguarding** guidelines, when groups are required to show how Mission Models work you could:
  - Physically share whilst distancing
  - Schedule and hold video call meetings
  - Record group updates (to share with the rest of the team)
  - Utilise **digital sharing tools**

Remote Bubble

- The Group Session Layout [Team Meeting Guide - Pages 7, 10-23] is unlikely to work for this team category.
- Consider if you will be able to distribute the Mission Model Builds. If you can, create a plan with the team members at the beginning of the season detailing points such as:
  - Who will build which bags (1-7)?
    - **NOTE:** Large pieces in the unmarked bags will need to be distributed as well
  - Do the Mission Models need to be built by one person who stores the challenge set?
  - When will they need to be completed by?
- Depending on your school/organisation **Sharing Materials** and **Safeguarding** guidelines, when groups are required to show how Mission Models work you could:
  - Physically share whilst distancing
  - Schedule and hold video call meetings
  - Record group updates (to share with the rest of the team)
  - Utilise **digital sharing tools**

06. ROBOT - BUILDING

Regardless of which of the four team categories you are working in, the building of the robot has multiple factors which apply across all of them. Therefore, we suggest you consider the following:

1. If you have them, use multiple robots within one team.
2. Depending on your **Sharing Materials** guidelines, have a group wash their hands pre- and post-session so they can all touch the LEGO pieces and help with building.
3. Designate one team member as the 'Builder' per session who is the only individual allowed to touch the robot and LEGO pieces
   - If you can clean and quarantine the LEGO between sessions, ensure you rotate the 'Builder' around team members
4. One team member is always the 'Builder' and will solely have access to the robot set. The rest of the team could offer suggestions on what to build/change, but only one team member would handle the pieces.

Making things easier and minimising contact

- Want a robot that you know will drive? Build the Advanced Driving Base (SPIKE Prime) or Driving Base (MINDSTORMS). Build instructions are provided within the **relevant software**. Refer to the Robot Lessons on Page 11 of the Engineering Notebook.
- Complete all the Robot Lessons of Page 11 of the Engineering Notebook to learn basic attachment and sensor builds.
- There is various Computer Aided Design (CAD) software available online that would enable teams to design attachments/robots without touching pieces. These designs could then be shared with the team 'Builder'.

Robot Building Related Appendices

- **Appendix 1: Digital Tools**

07. ROBOT - PROGRAMMING

With some creative adaptation, it is possible to have all team members contribute towards the programming of the robot.

- Tester – Team member or Coach responsible for touching and positioning the robot on the challenge mat.

One Bubble

- If possible, provide each team member with a device with the relevant **programming software** installed.
- If you have them, use multiple robots and devices within one team.
- Points to consider, depending on your school/organisation **Sharing Materials** guidelines, are:
    - o Can team members share a device, ensuring they wash their hands pre- and post-session?
    - o Can the team screen share across devices or show the programming on a large screen?
    - o Designate a 'Tester' to trial any programmes on the challenge mat

Pair of Bubbles

- If possible, provide each team member with a device with the relevant **programming software** installed.
- If you have them, use multiple robots and devices within one team.
- Points to consider, depending on your school/organisation **Sharing Materials** guidelines, are:
    - o Can team members share a device, ensuring they wash their hands pre- and post-session?
    - o Can the team screen share across devices or show the program on a large screen?
    - o Designate a 'Tester' to trial any programmes on the challenge mat
- Depending on your school/organisation **Sharing Materials** and **Safeguarding** guidelines, when groups are required to show their programming you could:
    - o Physically share whilst distancing
    - o Schedule and hold video call meetings
    - o Record group updates (to show to other group)
    - o Utilise **digital sharing tools**

Multi-Bubble

- The Group Session Layout [Team Meeting Guide - Pages 7, 10-23] is unlikely to work for this team category.
- If you have them, use multiple robots and devices within one team.
- Create a plan with the team members at the beginning of the season detailing points such as:
    - o Will you be able to rotate the robot around the team? Will one bubble be responsible for the robot?
    - o How will you ensure each team member is able to contribute towards the programming?
    - o How will bubbles without access to the robot be able to send their programme through for testing on the challenge mat?

o What deadlines need to be set for building and programming?
- Depending on your school/organisation **Sharing Materials** and **Safeguarding** guidelines, when groups are required to show their programming you could:
    o Physically share whilst distancing
    o Schedule and hold video call meetings
    o Record group updates (to share with the rest of the team)
    o Utilise **digital sharing tools**

Remote Bubble

- The Group Session Layout [Team Meeting Guide - Pages 7, 10-23] is unlikely to work for this team category.
- If you have them, use multiple robots and devices within one team.
- Create a plan with the team members at the beginning of the season detailing points such as:
    o Will you be able to rotate the robot around the team or will one team member be responsible for the robot?
    o How will you ensure each team member is able to contribute towards the programming?
    o How will team members be able to send their programme through for testing on the challenge mat?
    o What deadlines need to be set for building and programming?
- Depending on your school/organisation **Sharing Materials** and **Safeguarding** guidelines, when groups are required to show their programming you could:
    o Physically share whilst distancing
    o Schedule and hold video call meetings
    o Record group updates (to share with the rest of the team)
    o Utilise **digital sharing tools**

Robot Programming Related Resources
- **Appendix 1: Digital Tools**
- **Appendix 2: Accessing Experts Remotely**
- **Additional Resources section**

08. CORE VALUES

Throughout the season, however your team is working, they need to ensure they keep Core Values at the forefront of their minds. More than ever during these unusual times, the Core Values are crucial to the success of the team and in enabling them to have positive experiences throughout *FIRST* LEGO League Challenge.

The team members and coach may wish to consider the following:
- Have team members discover new 'norms' for working remotely.
- Keep the whole team involved by ensuring everyone has a role that is valuable to the overall team success.
- Effective communication is key!
- Use **Appendix 1: Digital Tools** for ideas of how to record and enhance Core Values in your team.
- Team members can record examples of Core Values on Page 9 of the Engineering Notebook (or in the Interactive Engineering Notebook PDF mentioned in the **Additional Resources** section).

- This season, the whole team needs to remember that everybody's situation may be different and can change very quickly. Encourage everyone to be patient, understanding and to support each other throughout all the ups and down that may occur.

09.   ADDITIONAL RESOURCES

The IET, LEGO Education and *FIRST* will continue to produce and enhance resources throughout the season to support coaches and team members. Resources that currently exist that may be of interested are:

- **Interactive Engineering Notebook PDF** – This is an adapted version of the Engineering Notebook that enables team members to work independently with a digital guide. In the PDF they can write notes, upload pictures/drawing and tick stages that have been completed.
- **RePLAY Session Videos** – An introduction to delivering the sessions detailed within the Team Meeting Guide, along with 12 session specific videos providing guidance, top tips and visual aids.
- **RePLAY Wireframe & Grid** – A digital version of the RePLAY challenge mat. A scale grid has been overlaid onto the mat image to enable team members to create rough codes for their robot.
- **Additional RePLAY challenge mats [PROVISIONAL] –** We are hoping to be able to offer teams the option to buy additional challenge mats (without the LEGO for the mission models) to reduce the number of team members gathered around a mat. If and when available, all teams will be emailed.

See Appendix 1: Digital Tools for ideas on how to import these documents into platforms for remote team meetings or a remote classroom environment.

10. COMMUNITY ENGAGEMENT

The LEGO Education Community is a passionate group of educators from around the world who believe that play and exploration build successful life-long learners. The community mission is to support and learn from one another, to find inspiration and to connect with peers.

The community enables the exchange of resources but also offers a range of discussion boards, including a competitions specific board. **Click here** to find out more and to join the LEGO Education Community.

11. EVENTS

As you are aware, the national situation is constantly changing, and regarding events, we will be following government guidance closely. We are currently planning and preparing for both remote and physical events, and depending on the guidance at the beginning of 2021, we will take the decisions on which way to proceed in order to keep all participants, organisers, and volunteers safe.

However, in terms of your preparation, please follow the Team Meeting Guide, and prepare as you would for a physical event. If the events are remote, they will be delivered through the official Remote Event Hub, and the expectation on you as a team will be the same. There will still be one 30-minute judging session, and three robot games – so get practising!

We will release more information regarding events as and when we have it, and all teams will be updated promptly. If you have any question regarding events, please email **FLLChallenge@theiet.org**.

12. APPENDICIES

APPENDIX 1: Digital Tools

One of the challenges with remote collaboration is the inspiration that happens by working together and making improvements in real time. Being remote sometimes makes this difficult when programming or editing documents.

If you are able to, choose a Video Conferencing service and apps (e.g. Microsoft Teams, Google Hangout, Zoom, Skype) to host your meetings. Please remember to review your school or organisation's **Safeguarding** guidance when deciding on a conferencing tool, and ensure the necessary protocols are followed for everyone's safety.

- Limit meetings to invited team members and specific invited guests only.
- Practice using the tool with the team, so all are comfortable with the platform and its features.

Other useful digital tools for sharing include:

- **Remote Collaboration** – Google Classroom, Microsoft Teams, Zoom, Discord
- **Digital Presentations -** Prezi, Google Slides
- **Social Learning** – Flipgrid
- **Collaborative Brainstorming** - Google Drawings, Teams Whiteboard, Google Jamboard, Padlet
- **Surveys or Interactive Stories** - Google Forms, Microsoft Forms, Survey Monkey
- **Project Management or Organisation** – Trello, Freedcamp, Click Up
- **Bring the FUN!** - Meme Generators or Kahoot

APPENDIX 2: Accessing Experts Remotely

Theme experts can be found and engaged through social media channels or virtual visits. Coaches should plan to take the lead on these platforms but can facilitate questions and conversations between their team members and adult experts.

Don't overlook the experts from your own school/organisation or the friends and family of team members. A PE teacher or personal trainer, representatives from a local sports team, or the designer of a local playground may all be interested and willing to talk to your team via webinar or virtual meeting.

Always consider your school or organisation's **Safeguarding** guidance and ensure that an adult coach is present during any meetings.

Points to remember are:

- Allowing plenty of time to source, contact and remotely meet with potential experts.
- When will you set up the meeting that is convenient for the coach, team members and expert?
- What platform will you use to host the meeting? Does it work for your expert?
- Agree the length and structure of the meeting beforehand (can team members ask questions, can the team deliver their presentation, can they get a virtual tour, etc.)

The Institution of Engineering and Technology

APPENDIX 3: Remote Bubbles – Things to consider

Things to consider when organising team meetings remotely:

1. **Understand what technology team members have access to**
   - Do they have internet/a computer/smart phone/zoom or Microsoft teams or other communication platforms?
   - Do they have the bandwidth and internet access stability?
   - Are they able to download **LEGO Education software or apps** on to their device?

2. **How much access does the child have?**
   - Are they sharing their computer or mobile phone with other members of the household?
   - Does the computer or phone have a camera?
   - How well does the internet work?
   - Are there limits on the amount of data for their phone or internet?
   - What permissions/limits does the team member have to use the home technology i.e. computer, smart phone, internet?
   - There are websites created by educational entities for interactive learning that can assist the team with their teamwork. Would the family allow their child to use this type of platform?

3. **What resources are available at home for the team member to use?**
   - Paper/pens/pencils/ items that can used to make things (cardboard, and carboard tubes, blank paper, scissors, glue, LEGO elements, storage container for work completed during the meeting, a space

4. **Would the parents like to participate/support the team and if so, how much and what might they like to do?**
   - What kind of communication/platform would be helpful to the family and how often?
   - How/when should parents communicate with you?

5. **Discuss days and times for team meetings to determine if there are family needs that impact participation?**