Sample Lesson Sequence
The 2027 Tech Challenge

Suggested Implementation		
This scope and sequence can be used by advisers or teachers to guide learners through the design process for The 2027 Tech Challenge: Game On!		
4th-9th grade	17-20 Sessions	45-60 minute class periods *Some lessons can span multiple sessions
Recommendation: Review The Tech's Design Challenge Learning resources prior to facilitation.* ***thetech.org/explore-dcl*		

Phase 1 | Define the Problem

Participant Event Option:
Sign-up for a Team Orientation and do it with the team

1 **Project Kick-off**



30 minutes

- Use your favorite icebreaker to help learners get to know each other and build excitement.
- Introduce learners to the project and establish the timeline and schedule.
- Introduce the **Team Guide** and review the **Adviser Guide** yourself.

2 **Reading the Rules**



30 minutes
Activities

- In a longer class period, have learners read the **2027 Rules** in detail before doing one or more of the icebreakers.
- See the notes throughout this sequence where we suggest revisiting the rules with learners using one of these activities.
- If you have not formed teams already, have learners form teams after this lesson.

3-4 **Engineering Journal**

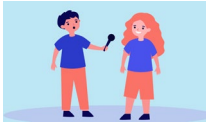


60 minutes
Lesson Plan

Use an additional session to…

- Have learners review the journal requirements in the 2027 Rules as well as the tips in the Team Guide.
- Have teams begin their journal by taking notes on what they have done so far and what they are looking forward to for the Challenge.
- Introduce learners to the Innovator Mindsets. Have them pick one or two they want to set as goals for themselves and record this in their journal.

5 **User-Centered Design: Know the Player**



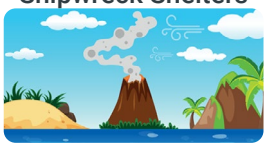
60 minutes
Lesson Plan

- Before leading this lesson make sure you coordinate how teams will interview users. Review the tips in the lesson as well as the **FAQs** on our website.
- If possible, give teams the opportunity to select the user or type of user they want to interview and design their game for.
- Make sure teams save their interview notes and Player Bio in their journal so they can refer back to them later when making decisions about their game design.

Phase 2 | Imagine and Brainstorm Ideas

6

Shipwreck Shelters



60 minutes

Lesson Plan

- During the activity, have learners consider which materials combinations are more durable and reliable.
- See the Materials Strategies Tech Tip for more ideas.
- Some learners find it useful to explore with materials before they begin to imagine solutions.

7-8

Brainstorming Ideas

Two 60 minute sessions

Lesson Plan

- In a longer class period, have learners read the 2027 Rules in detail before doing one or more of the icebreakers.
- See the notes throughout this sequence where we suggest revisiting the rules with learners using one of these activities.
- If you have not formed teams already, have learners form teams after this lesson.

Extension

Get in the Game



90 minutes

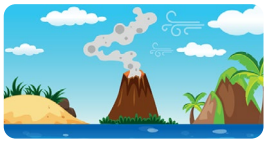
Activity and Videos

- With additional time, use this resource to introduce computational thinking and guide teams on the details of their game and its rules.
- Adjust this resource to focus on mechanical games instead of board games specifically.

Phase 3 | Create Prototypes

9

Mechanical Animal



70 minutes

Lesson Plan

- This lesson can also be done after teams have started prototyping if they need additional practice with certain mechanisms.
- Advanced engineers can try some of the adaptations within the lesson or pull ideas from some of the resources included for other mechanisms to practice designing.

10-11

Prototyping and Iterating

Two to four 60 minute sessions

*Revisit the Rules

- Once a team has an idea for their game, they will need several dedicated sessions to build and iterate on their design.
- Encourage them to test with each other before they playtest with their user.
- See the Prototyping Tech Tip for more ideas on how to encourage iteration and perseverance.
- Have teams revisit the rules through one of the Reading the Rules icebreakers to think about how they are meeting the requirements as they build.

Extension

Chain Reactions



Two 60 minute sessions

Lesson Plan

- This lesson includes a number of physical cards which introduce simple machines.
- The lesson can be included before or during prototyping as a way to practice building and using wheels, axels, pulleys etc.
- The resources can also be referenced on their own when teams are struggling with a concept.

Extension

Count the Seconds



90 minutes

Lesson Plan

- This lesson provides teams practice with the concept of stored energy.
- It can be done before or during prototyping as a way to explore different types of physical interactions.

Phase 4 | Test and Reflect

Participant Event Option:
Have the team attend Test Trials

12

User-Centered Design: Playtest a Game



60 minutes

Lesson Plan

- Before leading this lesson make sure you coordinate how teams will playtest with users. Review the tips in the lesson as well as the FAQs on our website.
- If possible, try to arrange several playtesting sessions throughout the iteration cycle.
- Some learners may need additional support developing their iteration plan, try to use open-ended questions to guide them through this process.

13-14

Iterating and Improving

Two to four 60 minute sessions

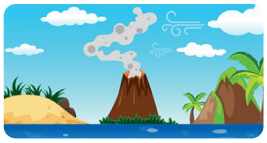
*Revisit the Rules

- After playtesting, teams will need to revise their design based on the feedback they received.
- Teams will need a few dedicated sessions to improve and iterate on their design.
- This is also a good time to have teams revisit the rules through one of the Reading the Rules icebreakers to have teams check how they are meeting the requirements.

Phase 5 | Share

15-16

Intergalactic Interview



Two 60 minute sessions

Lesson Plan

- After practicing their interviewing skills with this lesson, ask teams to think about how they can introduce their game in the short tutorial part of the Showcase playtesting.
- It may also be useful for teams to practice the playtesting process from Showcase with each other.
- See the Tech Tip: Sharing for more guidance on building intentional practices around sharing and feedback into the process.

17+

Final Design

One to two 60 minute sessions

*Revisit the Rules

- The final step is preparing teams for The Showcase.
- Remind them that they do NOT need to have a game design that works, the goal is to share their process with others.
- Review the 2027 Rules and make sure teams know what to expect at Showcase.
- Reflect back as well on what they learned and capture that in their journal.

Go to the Showcase with the team
After the Showcase event, you may want to
hold a final session to debrief and celebrate with the team!