

Mars Startup School

Challenge 3
The Program

**Let's Imagine the
Future of STEM
Education in Canada**

Welcome to the **Mars Startup School.**



As students, you have the experience and creativity to create a better education system for STEM (Science, Technology, Engineering & Math). As we imagine a new society on Mars we will need new schools. This is a unique opportunity to reimagine school from the ground up. It is up to you to design the components of Mars Startup School.

This mission requires courage, curiosity and creative thinking.

Let's blast off and get started!

Your Startup Design Kit.

Designing a new education system is not an easy task, so we created this workbook to help you through the Challenge. It consists of:

1 Student Workbook.

The *Student Workbook* is your guide throughout this Challenge. It includes all the information required to develop and communicate your ideas.



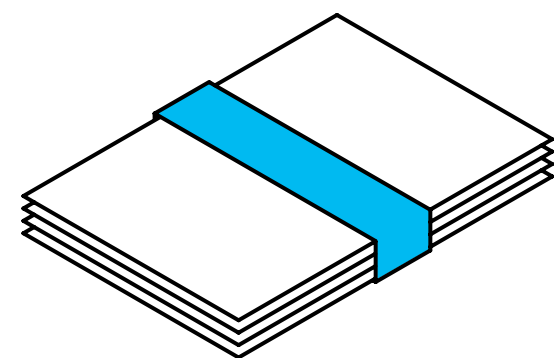
2 Worksheets.

The *Worksheets* will help your team organize your ideas as you design a component of Mars Startup School. They build on one another to ensure your team creates a solid concept.



3 Precedents Cards.

Precedents Cards showcase projects from around the world to provide inspiration and spark creativity within your team. These can be helpful at any point in the process.



Mars Startup School Challenge.

Here are the steps your team will follow throughout the day to design a component of the Mars Startup School and totally reimagine STEM education. Let the Challenge begin!

1

Meet Your Team! (25 min.)

Meet Your Team! Get to know your teammates, their special talents and their passions.

2

Design Criteria. (40 min.)

Focusing on a component of Mars Startup School, your team will define design criteria, which will create a framework for your design concept.



3

Concept Design. (60 min.)

Building on your design criteria, your team will design a solution, experience or team that will transform STEM education.

4

Share. (45 min.)

Gather with other Mars Startup School teams who have worked on different components of the school. Share your solutions and see how they could all work together.

!

There are many unknowns throughout this Challenge, so don't be limited to the tools provided in the Mars Startup School Design Toolkit. Be creative and have fun!

Step One.

Meet Your Team!



Teamwork and collaboration are key to the success of this Challenge. Spend 25 minutes to get to know your team.

Introductions (5 min.)

Get to know each other and note the special talents each of you will contribute to the team. Quickly go around the table and share:

- Your name
- Where you go to school
- One special talent/strength

Take note of everyone's special talents because this can be helpful in the design process.

Play a Game (10 min.)

Two truths and a lie is a great game to help break the ice and loosen the mood on your team.

- Everyone write 2 truths and one lie on Post-its
- Go around the table and have members of the team guess the lies

Make sure everyone at the table has a chance to play before moving on to **Step 2**.

3. Discuss Your Vision for Mars Startup School (10 min.)

Before your team gets down to work, take a few minutes to think about how cool this challenge is... to design a Startup School on Mars. Imagine the possibilities of creating a new school. In what ways will the school you build on Mars be different from your school here on Earth? Write down the first ideas that come to mind and discuss as a group to get the creativity flowing. Make sure to take notes.



Brainstorm Tips & Rules.

Here are a few brainstorming tips to remember before your team begins imagining Mars Startup School:

- **Be open, honest and imaginative.**

When completing the Challenge, there are no right or wrong answers. Always be polite and respectful.

- **Forget about today's reality and dream big!**

Think about how much things have changed in your lifetime and imagine how much they will continue to change in the future.

- **Take it to heart.**

This is an opportunity to influence the next generations in a positive way. It's not often you're asked to contribute to a brighter future for Canada's youth, be thoughtful.

Step Two.

Design.



Now that your creativity is flowing, it's time to focus our efforts on one component of the Mars Startup School. The component that you will be focusing on is creating a New STEM Program.

Our education experience is organized by separate subject areas and specialization, and evaluates students' ability for memorization and retention versus process, integration and application.

It is your job to imagine a New STEM Program. How could this program respond to global Challenges and promote competencies like problem solving and collaboration?

Instructions: Our Program Criteria (40 min.)

Use the **WORKSHEET: OUR PROGRAM CRITERIA** to understand what your team wants to learn, how it might be delivered and the attitudes, skills and knowledge Mars Startup School will equip you with to excel.

- Read each question on the worksheet aloud.
- Spend 2 minutes on each question and encourage everyone on the team to write as many ideas as possible onto Post-its.
- After writing ideas for each question, have everyone on the team place their ideas onto the worksheet and cluster similar ideas.

Summarize the key ideas and features at the bottom of the page to define your program criteria. This should describe your ideal program, what it includes, how it is delivered and how it will prepare you for solving complex Challenges in the future. You can write directly on the poster!

OUTCOME: Identify students' passions and interests to help define an ideal STEM Program that can be offered at Mars Startup School.

Design.

Identify what your team wants to learn, how it might be delivered and the attitudes, skills and knowledge Mars Startup School will equip you with to excel in the future.

Our Program Criteria

What are you most passionate / curious about?

Consider how your passions and curiosities can be included in the New STEM Program offered at Mars Startup School.

What problems are you most interested in solving?

Consider what motivates you and what STEM Program can help you solve these problems at Mars Startup School.

What attitudes, skills and knowledge do you want to gain at Mars Startup School?

Consider what skills might be needed in the future and specifically what STEM knowledge and skills you want to gain.

When do you learn best?

Think of your most memorable learning experiences and when you learn best in and out of school.

What learning experiences (STEM or otherwise) do you find most engaging?

Consider what formats, qualities and characteristics make these experiences or programs engaging.

What do you want to change most about your existing programs and how they are delivered?

Consider how your New STEM Program will better meet the needs of students and the ways they want to learn.

Our Program Criteria.

Describe your ideal program at Mars Startup School and what it includes.

Step Two Cont'd. Concept Design.



Now that you have some clear ideas about your learning preferences, what the program might include, how the program will be delivered and the outcomes of the program, you will need to work out the details of the design and create a concept.

Instructions: Our New STEM Program (60 min.)

Use the **WORKSHEET: OUR PROGRAM DESIGN** to help your team develop the details of the New STEM Program at Mars Startup School.

- Answer each of the questions on the worksheet in as much detail as possible. Go back to your brainstorm to remember the key ideas that everyone agreed should be included in your concept.
- Create a timeline that showcases what types of courses and assignments might be included in your program and when the students will participate in the program.
- Write or draw the details of your concept directly onto the poster.

Don't be limited by the questions on the poster. If you feel something else should be included or communicated about your concept - add it!

OUTCOME: Create a concept for a New STEM Program and how it responds to global challenges and shapes Startup School students' attitudes, skills and knowledge.

Design.

Develop the details of your ideal program at Mars Startup School and how it will help prepare you for the future.

Our Program Design

What is it?

Define what will the program include (e.g. are there courses and assignments?) and what skills and knowledge a graduate of the program will have.

How is it delivered & evaluated?

Define how the program will be delivered and how students will be assessed.

Who is involved in the program?

Define everyone who will be involved in teaching and learning through this program.

Why will students, teachers and others want to take this program?

Define why the program will transform learning.

Where will you take the program?

Define the spaces, places and experiences of your New STEM Program.

When will you take the program?

Define the timing of the program and how it is accessible for all students at Mars Startup School.

Our Program Schedule / Timeline.

Create a diagram that outlines the courses and assignments that will be included in the program and when students will participate in the program.

Step Three. Share.



Summarize your Challenge and ideas to share with the other teams in Mars Startup School. Each team will only have **3 minutes** to present their final concepts, so be sure the team captures and communicates the most important features of your design!

Instructions: Share (45 min.)

Use the **SHARE WORKSHEET** to help you summarize your ideas. This should only take a few minutes to help you recap your ideas. You can use the other posters to help you present.

- Restate the design Challenge in your own words.
- Summarize the program you designed and describe how it meets the design criteria you identified at the bottom of the **WORKSHEET: OUR PROGRAM CRITERIA**
- Describe how the program will change the education system and positively impact future students.

Gather with the other teams in your Start-Up School community to share solutions and have a closing discussion about the future of STEM education.

OUTCOME: Summarize the key ideas your team developed throughout this process and communicate your ideas to the other teams.

Share.

Summarize your Challenge and ideas to share with the other teams.
This should include the most important features of your design!

Our Team Summary

Our vision for Mars Startup School is...

Summarize your Mars Startup School vision.

Our design Challenge was...

Restate your design Challenge in your own words.

Our program criteria is...

Summarize key ideas from your program criteria.

This will be different from the education system on Earth because...

Describe how the STEM Program will transform the educational experience and prepare students for the future. How does this differ from school on Earth?

Sketch it!

Use sketches or a day in the life to illustrate how this program might look and feel.

Let's Wrap It up!



Thank you for participating in this Youth Summit and contributing ideas that will help shape the future of STEM education in Canada.

Before you depart please gather the worksheets, Post-its, sketches and notes your team produced over the course of this Challenge. **Place everything back on the table in order.**

Next Steps.

Canada2067

Believe it or not, **your ideas can influence change**. The ideas you produced today will be collected, captured, summarized and presented to policy makers from across Canada to help shape the future of STEM education.

How to Stay Involved.

If you enjoyed taking part in the **Canada 2067** Youth Summit and completing Mars Startup School Challenge you can stay involved in a number of ways:

- Host your own Canada 2067 Startup School workshop by downloading the materials we used today! www.explorecuriosity.org/canada2067
- Host a conversation about STEM learning using the Canada2067 Conversation Guides. Choose from: STEM and Everyday Life; The People We Learn From; and STEM and the Student's Role in Learning.
www.canada2067.ca/en/are-you-a-student/#youth-workbooks
- Join us on social media to raise awareness about Canada2067 initiatives. Support us [@Can2067STEM](https://twitter.com/Can2067STEM). Together we can make difference! [#Can2067](https://twitter.com/Can2067)
- Learn more about STEM opportunities through CurioCity career profiles.
www.explorecuriosity.org/canada2067



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