Unit 1: What are the Global Goals & the Future Trailblazer Challenge?

Module 1: Discover
What are the BIGGEST PROBLEMS faced by people AROUND THE WORLD today?
What is the Future **Trailblazer** Challenge?

Inspiring young students to care about and act on sustainability challenges their generation will face

**THE CHALLENGE**

- **Maker Contest** that everyone can run in partnership with a school or educators
- 6 weeks curriculum developed with SFUSD
- Students learn about UN’s SDGs and cutting edge technologies like **3D printing**
- **Present** at a Maker Faire in front of a real audience
Maker Process Overview

What is the next 6 weeks is going to look like?
Maker Process Overview
What is the next 6 weeks is going to look like?

DISCOVER

- Learn About the UN Global Goals
- Learn about New Technologies
  - Micro:bit
  - 3D Printing
  - Coding
Maker Process Overview
What is the next 6 weeks is going to look like?

**DESIGN**

- Form your groups
- Brainstorm on a solution to a Global Goal
- Imagine how users will use your solution
- Prototype it in cardboard!
Maker Process Overview
What is the next 6 weeks is going to look like?

MAKE

- Transform your cardboards into a real prototype
  - Design and 3D print it
  - Add some electronics to it
  - Interact with an app on your computer
- Learn the Agile methodology to manage the project
Maker Process Overview
What is the next 6 weeks is going to look like?

**PRESENT**

- Learn how to do the elevator pitch
- Train as a team to explain your solution
- Go present it in front of other innovators
What are the Global Goals (SDGs)?

**ANSWER THESE QUESTIONS:**

- What year do we need to complete the challenge by?
- What are some of the challenges that Earth currently faces?
- What is the organization, with 193 members, that works towards safety, fairness and security?
- How many Global Goals (also known as the Sustainable Development Goals) are there?
Global Goals Scavenger Hunt

- Explore the Global Goals posters to find the answers to the questions
- Try to get all the answers- and be ready for the Quiz!

Go to Kahoot to run a fun game.
Closeout: Which goals do YOU care about?
Find 1 or 2 that interest you and explain why.
Unit 2: How to Turn Learning Into Action

Module 1: Discover
DO NOW
Organize the 17 UN Global Goals into 3 main categories:

- Poverty
- Inequality
- Environment

<table>
<thead>
<tr>
<th>1</th>
<th>No Poverty</th>
<th>2</th>
<th>Zero Hunger</th>
<th>3</th>
<th>Good Health and Well-Being</th>
<th>4</th>
<th>Quality Education</th>
<th>5</th>
<th>Gender Equality</th>
<th>6</th>
<th>Clean Water and Sanitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Affordable and Clean Energy</td>
<td>8</td>
<td>Decent Work and Economic Growth</td>
<td>9</td>
<td>Industry, Innovation and Infrastructure</td>
<td>10</td>
<td>Reduced Inequalities</td>
<td>11</td>
<td>Sustainable Cities and Communities</td>
<td>12</td>
<td>Responsible Consumption and Production</td>
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<tr>
<td>13</td>
<td>Climate Action</td>
<td>14</td>
<td>Life Below Water</td>
<td>15</td>
<td>Life on Land</td>
<td>16</td>
<td>Peace and Justice, Strong Institutions</td>
<td>17</td>
<td>Partnerships for the Goals</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Global Goals for Sustainable Development

For Sustainable Development
Agenda

1. Do Now
2. Explore Projects
3. Learn about a Goal
4. Paper Chains
Video 1: Elif

Explore Global Goals Solutions Elif

**ANSWER THESE QUESTIONS:**

- What solution did Elif create?
What goals did Elif cared about?
Video 2: Rohit, North Philadelphia, Nigeria

**ANSWER THESE QUESTIONS:**

- What solution did Rohit create?
- What solution did young people North Philadelphia create?
- What solution did young people in Nigeria create?
What goals did Muzoon care about?
Team Lawton: Fall 2018 San Francisco Bay Winner

ANSWER THESE QUESTIONS:

- What problem does the project try to address?
- How does their project address the problem?
- How could you imagine improving the project?
- What additional things could the project do?
- How could it be easier to use?
Closeout: Paper Chains
Select 1-3 goals you care the most about and write at least 2 sentences explaining why you are interested in those goals.

You can write about:
- How thinking about the goal makes you feel...
- How you (or others you know) have been affected by the topic...
- Tell me a story about when you were affected by the goal...
- What are pros/cons of acting on that goal...?
- What questions do you have about the goal?
- What is currently being done about the goal?

Then, one at a time, read your explanation out loud and stick your paper to the previous one that spoke.
Unit 3: Why should we care: Global Goals Advocacy

Module 1: Discover
Welcome to the Age of Makers!
Time to play a new game

1. Open Chrome
2. Go to bit.ly/aom-game to install the game
Welcome to the Age of Makers!

Time to play a new game
Complete Quests to advance through the Ages
Explore the Maker Mount to learn more

Start from the first available Quest and make your own path!

<table>
<thead>
<tr>
<th>Quests</th>
<th>~ Time</th>
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</thead>
<tbody>
<tr>
<td>What have other students done?</td>
<td>20 min.</td>
</tr>
<tr>
<td>Advocate for your goal!</td>
<td>20 min.</td>
</tr>
</tbody>
</table>
Can Technology Help Us Save the World?

You might be wondering:

• “How can I use technology to solve for the Global Goal I care about?”

• “What did other students do around the world to solve for those?”
Closeout: Tell why your goal is important
Start from the first available Quest and make your own path!

Advocate for your goal in 2 minutes and get feedback!

SWITCH!
Unit 4: Code a Scrolling Namebadge

Module 1: Discover
Agenda

1. Micro:bits Overview
2. Code your Micro:bits!
3. Explore new electronics horizons
What is a Micro:bit?

ANSWER THESE QUESTIONS:

- What are 2 objects that you can build with a Micro:bit?
- Name 2 of the features that the Micro:bit has?
What is a Micro:bit?
Explore the Electronics Valley to learn more
Start from the first available Quest and make your own path!
Unit 5: Design & 3D Print Your Own Keychain

Module 1: Discover
Agenda

1. 3D Printing overview
2. Your First 3D Quest with Tinkercad
3. Print Your Keychain in 3D!
You said 3D Printing??

**ANSWER THESE QUESTIONS:**

- What is the name of the process used in 3D printing? How does it work?
- Name at least 2 things or objects that can be 3D printed.
- If you’d be able to print anything, what would you like to 3D print?
3D Printing Process
Failed Horizontal Overhangs
Explore the 3D Valley to learn more
Start from the first available Quest and make your own path!

<table>
<thead>
<tr>
<th>Quests</th>
<th>~ Time</th>
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</thead>
<tbody>
<tr>
<td>Electronic Nametag</td>
<td>5 min.</td>
</tr>
<tr>
<td>Code a Smile</td>
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<tr>
<td>Plot the Accelerator</td>
<td></td>
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<tr>
<td>Rock, Paper, Rock</td>
<td></td>
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<tr>
<td>Flip Coin</td>
<td></td>
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<tr>
<td>Stopwatch</td>
<td></td>
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<tr>
<td>High-Five Machine</td>
<td>15 min.</td>
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<tr>
<td>Micro:Chat</td>
<td>15 min.</td>
</tr>
<tr>
<td>Show the Light Level</td>
<td>5 min.</td>
</tr>
<tr>
<td>Hack your Headphone</td>
<td>15 min.</td>
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</tbody>
</table>

30:00
Export for 3D Printing
WEEK 2: DESIGN

Total: 4-6 hours

Module 2, Part 1
Find Your Group and Your Challenge
50 min.

Module 2, Part 2
Brainstorming Session
50 min.

Module 2, Part 3
Create Your Own Comic Book!
50 min.

Module 2, Part 4
Prototype in Cardboard
1 to 3 x 50 min.
Unit 1: Code a Scrolling Namebadge

Module 2: Design
DO NOW

- Think about which Global Goals you are most interested in building solutions for
- What questions do you have about them?
Agenda

1. Do Now
2. Find your team!
3. Problem Statement
4. Closeout
Find your team!
Group Formation

1. Go under the poster of the Global Goal you’re the most interested in!
2. Team-up with students you have similar interest with.
3. Find a team name!!
Discovery
Set the right targets for your project.

With your group:

1. Identify 2-3 Global Goal Targets for your project
2. List 5 important facts about your topic
Understand Your Problem
Work with your team to answer the question below.

<table>
<thead>
<tr>
<th><strong>What</strong></th>
<th>is the problem you're trying to solve? (refer to one Global Goal Target)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Who</strong></td>
<td>does the problem affect?</td>
</tr>
<tr>
<td><strong>Why</strong></td>
<td>is it important to solve?</td>
</tr>
</tbody>
</table>
Create a Problem Statement

Problem Statements help innovators focus on the most important things to solve for.

1. Identify who your users are.
2. Explain their need(s).
3. Explain why it’s important to them.

⇒ Consider the targets associated with your Goal.
   You can find each Global Goal targets at the end of your Handbook p. Y.
Create a Problem Statement
Tips for Creating a Problem Statement, it should:

- **Not impose limitations**
  Don’t worry about technical, financial, time constraints, or other challenges.

- **Be actionable**
  Use strong verbs, like “How might we teach...”, or “How might we provide...”

- **Be specific**
  Be specific about the job to be done and the people that you’re designing for.

- **Be succinct**
  Keep it brief and clearly explained.
Closeout: Share-out

Each group tell its problem statement in **1 minutes** and get feedback!
Unit 2: Brainstorming Session

Module 2: Design
DO NOW
Write down ~5 CRAZY ideas on how you’d use tech to solve your problem
Agenda
1. Do Now
2. Wild Idea Dash
3. One Standout Idea
4. Closeout
Wild Idea Dash
Think about 4 potential solutions for your Global Goal.

- Sketch quickly to do as many as you can
- No limiting is impossible!
Group Sharing

Share your Wild Ideas to the other teammates!
Don’t forget to get feedback:

- Your partners reply to A, B & C
- Can add other feedbacks in the bottom
One Standout Idea
Select one idea from your groups’ wild ideas

- Use the feedback from your teammates
- Try to merge the good wild ideas together!

→ Write a fuller description of it.
Closeout: Share-out

Each group share its One Standout Idea

2 minutes

and get feedback!
Unit 3: Create Your Own Comic Book!

Module 2: Design
Design your own Comic Book!
Tell the story of how your creation will solve a Global Goal.

You will create a Comic book about the project you’re about to make!

Focus on:
- People facing issues related to your Global Goal.
- How could you design a solution to their issues?
- Don’t limit yourself! Imagine everything is possible.
Start by creating your character(s).

Create one or more character(s):

- Inspire yourself from real/realistic persons
- Pick someone facing challenges related to your Global Goal
- Invent it! Just make it realistic.
- Be creative. Don’t limit yourself to human!
  (what if your character was an animal? an alien?)
Tell us a story about your character(s)!

Break down your story into:

- [1-2 boxes] Introduce the character(s)
  → describe a typical thing they’re doing
- [1-3 boxes] Show challenges they’re facing.
- [1-3 boxes] Show how they would be using your creation.
  → what can you build that solves their issues?
- [1 box] Highlight what impact your creation had into the character(s) life.
Closeout: Presentations

Each group read through its comic

3 minutes

and get feedback!
Unit 4: Prototype in Cardboard

Module 2: Design
DO NOW

Imagine in your head what would your prototype look like in 3D
Agenda

1. Examples: from Prototype to Finish
2. Get Your Hands Dirty (literally!)
3. Present
Sustainable Fountain

I made a water fountain to have clean water from the mountain, not fake water with a lot of chemicals. It has a counter to tell people that water is a precious resource.
My school is better for the future because it is a K-College school, where you don’t have to transfer, college is free and you don’t have to be in a classroom when you learn.
I did this so that homeless people can learn how to be responsible for their lives. They will find the job they need to earn money to have a real home.
Autonomous Couch Hoverboard

It’s a hoverboard so you don’t have to use a car anymore. It can take you where you want to go and everybody can use it. You don’t have to worry about losing your keys.
Flying Ice Cream Museum

This project is a museum for people to enjoy ice-cream. It’s awesome because it floats to your house to make ice cream, and no ice-cream museum does that.
Time to Prototype!

- No wrong way
- Try, fail... and try again
- Imagine by drawing
Closeout: Presentations

Each group share its One Standout Idea

2 minutes
and get feedback!
WEEK 3-5: MAKE
Total: 10 to 15 hours

WEEK 3
Module 3, Part 1
How to Manage Your Project
50 min.

Module 3, Part 2
Stand-up meeting & working session
4 x 50 min.

WEEK 4
Module 3, Part 2
Stand-up meeting & working session
5 x 50 min.

WEEK 5
Module 3, Part 2
Stand-up meeting & working session
1 to 5 x 50 min.
Unit 1: Learn How to Manage Your Project

Module 3: Make
DO NOW

What was a project you worked on this year?
→ What was your role?
→ Were you able to finish it in time? Why?
Agenda
1. Do Now
2. Project Management Overview
3. Define Your Roles
4. Goal Definition
5. Breaking Down the Tasks
6. Agile Methodology
The Project Management Process

ANSWER THESE QUESTIONS:

- What is the first thing you do in Project Management?
- What do you need to create a plan of action?
- What do you do when you run into barriers?
3D Artist
- Design the required 3D models
- Print the models using the 3D Printer
- Test and iterate on the designs

Mad Coder
- Code the Sketch/Web App (if any)
- Run/test the code
- Integrate code with micro:bits
The Agile Methodology

Sprints

2-weeks working sessions

Stand-Up

Standing update meeting each-day

Deliverables

Finalized product features
## Breaking Down the Tasks

List the task that needs to be done with your project.

- Keep each task simple and feasible. Be specific.
  - **Good task**
  - **Bad task (too vague)**
  - **Do all the 3D designs in 3 weeks if you can!**

### Table

<table>
<thead>
<tr>
<th>Task Details</th>
<th>Assigned to</th>
<th>Hours of work needed</th>
</tr>
</thead>
</table>

- **15 mins**
Plan Your First Sprint with Trello

ANSWER THESE QUESTIONS:

- What does the Backlog contains?
- What lists is a Task going through before being Done?
Set up your Trello Project

Follow those steps:
1. In your group, the Project Manager ONLY takes the Trello Quest
2. Share the copied board to your team members
3. Add all the tasks in the backlog from your handbooks
4. Drag some tasks to the sprint list
Unit 2: sprint Days

Module 3: Make
Working Session
Everyone works on his task
Closeout

Fill in the
“Last class, I worked on...”
for next time!
WEEK 6: PRESENT

Total: 4-6 hours + Field Trip

Module 4, Part 1
Introduction to Pitching
50 min.

Module 4, Part 2
Demo Video
50 min.

Module 4, Part 3
Presentation Planning
2 x 50 min.

Module 4, Part 4
Maker Showcase at Salesforce!
1/2 to 1 day
Unit 1: sprint Days

Module 4: Present
DO NOW

What is the greatest fear among people in developed countries?
→ Glossophobia: the fear of public speaking
Agenda

- Do Now
- Glossophobia Spectrum
- Effective Public Speaking Strips
- Persuade Me!
Glossophobia Spectrum

- Stand up
- Go to the Entry Door if you are completely comfortable with public speaking
- Go to the Closed Door (in the back) if you would NEVER do public speaking
Glossophobia Spectrum

- What concerns you about Public Speaking?
  - Who are effective public speakers?
- What do they do that makes them effective?
Effective Public Speaking

- 4-6 Volunteers
- Distribute Effective Public Speaking Strips
- Dramatize Tips
Persuade Me: Instructions

1. Pick a topic (example: Cats vs. Dogs) and pick a side (Dogs)

2. On your handbook, write 3 Pros (reasons for your side) and 3 Cons (reasons against the other side)

3. Using your Pros and Cons, each person in your group will speak for 30 seconds on your topic.

Ex: “I think Cats are better than Dogs because…”
-add an anecdote “My cat killed a bird and brought it to me!”
Persuade Me: Topics

- Dogs vs. Cats
- Watching the movie vs. reading the book
- Regular MS vs. K-8
- Rich and unhappy vs. broke and happy
- Drake vs. Migos
Unit 2: sprint Days

Module 4: Present
4.2 Presentation

Using the provided presentation template, prepare to present about:

- The problem they set out to solve
- Their process of project development
- The ways the prototype address the problem
Designing a Presentation: Engage, Inform, & Inspire

1. Engage: How will you get your audience’s attention?
2. Inform: What strategies will you use to give information to your audience?
3. Inspire: What will you do to make sure your audience cares about or remembers your presentation?
Prepare your Presentation

- 2 minutes
- Engage your audience
- Inform using Prototype Posters
- Inspire: How will your audience use this app to solve a problem or challenge?
Example Presentations: Endangered Animal App
Example Presentations: Natural Disasters App
Example Presentations: SF High Schools App
Presentations!
## Feedback Rubric

<table>
<thead>
<tr>
<th><strong>Engage</strong></th>
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</thead>
<tbody>
<tr>
<td>(did the group attempt to engage the audience?)</td>
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</table>

<table>
<thead>
<tr>
<th><strong>Inform</strong></th>
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<tbody>
<tr>
<td>(did the group give background info on their Global Goal?)</td>
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<table>
<thead>
<tr>
<th><strong>Inspire</strong></th>
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<tbody>
<tr>
<td>(did the group include a story that showed the importance of their project?)</td>
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</table>

<table>
<thead>
<tr>
<th><strong>Public Speaking</strong></th>
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</thead>
<tbody>
<tr>
<td>○ Energy and Enthusiasm</td>
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<tr>
<td>○ Speaks Loudly and Clearly</td>
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<tr>
<td>○ Make Eye Contact with the Audience</td>
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Unit 3: Demo Video

Module 4: Present
4.3 Film a Demo Video

1. Inspiration: Watch past videos to get ideas
2. Storyboard: Organize and brainstorm the storyboard of your Demo Video
3. Make Video: Film, edit and create your pitch video
Demo Video: 4W’s

- A demo video is a product demonstration – you are showing off your project and all its awesome features you created!

  - The demo video should let the viewer experience the project as if they were a user, so they understand how the project works, and how it can help them.

- Video can be up to 2 minutes long. A demo video should be short. It should be able to stand alone and be primarily focused on the features on the Project.

- Clearly demonstrate the functionality of your project. You can get as creative as you want here! Use a variety of methods to tell your story. Some examples are: skits, slide presentations, testimonials from users, or interviews. You might even want to add some text, arrows, or images to the video to clearly demonstrate what you are talking about.

- Highlight the unique features of your project. Show off all the awesome things you developed. These features will help you stand out from the crowd! If you can show them off in an original way, even better!
Unit 4: Demo Video

Module 4: Present
THANK YOU!
More slides coming soon!