TECHNOVATION
Families

INVENTOR NOTEBOOK
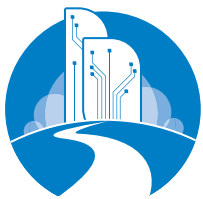
LESSONS 1-5

Team name:

_____

Team members:

_____

_____

_____

_____

Location:

_____

#Technovation

Share your work with us!

CALL TO ADVENTURE

The journey starts today!
What problem will you solve?

_____

TEAM NAME

is going to use AI to try to solve the problem of:

_____

PROBLEM THAT YOUR TEAM WILL TRY TO SOLVE

THE MAP OF AI ADVENTURE

Cut out the badges below and place them on the map as you complete lessons!

CALL TO ADVENTURE

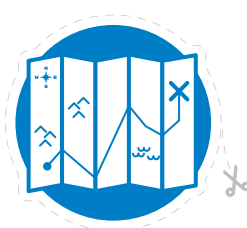**PACK FOR YOUR JOURNEY**

MAPPING YOUR JOURNEY

SEA OF DATA

ETHICAL DETECTIVE

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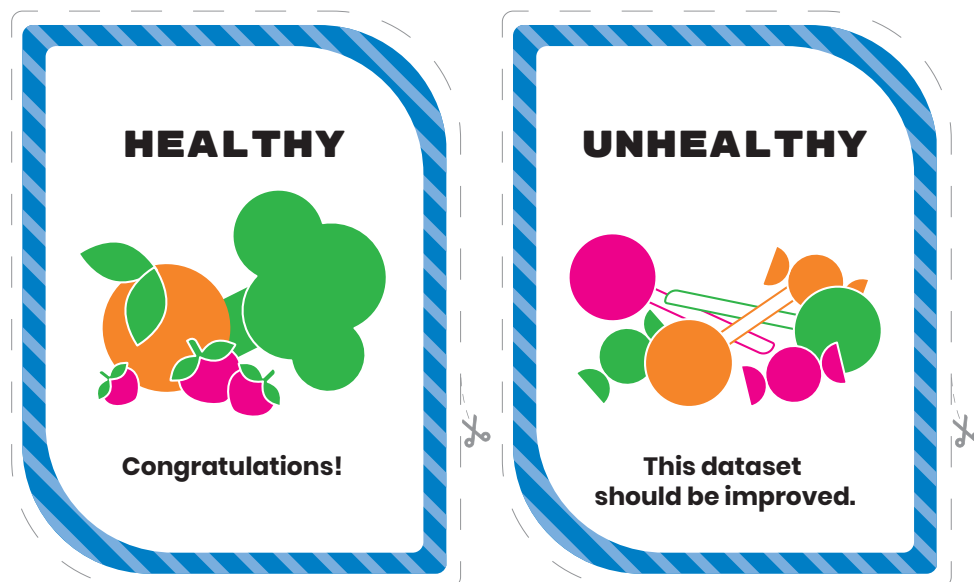Mentor feedback can help guide your journey!

PACK FOR YOUR JOURNEY

Game: Judge the Dataset

Use this game to judge whether different datasets would make an AI model that could make good predictions. For each dataset, you'll:

- Pick 2–3 yellow cards (on the next page) to describe the data

- Choose one blue judgment card, based on the description cards chosen

Cut out the cards below and on the following page to play the game!

HEALTHY

Congratulations!

UNHEALTHY

This dataset should be improved.

BALANCED

This dataset has equal amounts of different types of data.
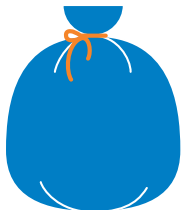
NOT BALANCED

This dataset does not have equal amounts of different types of data.

SOMETHING IS MISSING

This dataset is missing something.

ENOUGH DATA

This dataset has enough data samples.

NOT ENOUGH DATA

This dataset needs more data samples.

OTHER

Something else is wrong with this dataset.

RIGHT DATA TYPE

This dataset has the correct types of data.

NOT THE RIGHT DATA TYPE

Different types of data would be better for this dataset.

Game: UN Sustainable Development Goals

Cut out and categorize the prompts on the following page into the Sustainable Development Goal categories below. Then, work with your team to complete the statement at the bottom of the page!

BASIC NEEDS

SDG 1: no poverty
SDG 2: no hunger
SDG 6: clean water and sanitation
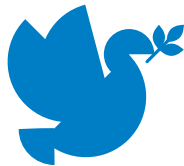
HEALTHY MINDS AND BODIES

SDG 3: good health
SDG 4: quality education

ENVIRONMENT

SDG 7: affordable clean energy
SDG 12: responsible consumption & production
SDG 13: climate action
SDG 14: life below water
SDG 15: life on land

JUSTICE AND PEACE

SDG 5: gender equality
SDG 10: reduced inequalities
SDG 16: peace, justice, and strong institutions

COMMUNITY

SDG 8: work & economic growth
SDG 9: industry innovation & infrastructure
SDG 11: sustainable cities & communities
SDG 17: partnerships for the goals

Problems I care about

I care about _____

because _____

Another problem I'd like to explore is _____

_____

PROBLEM

Parents don't always understand what a newborn needs from their cry

PROBLEM

Many people lost their jobs when businesses shut to slow disease spread

PROBLEM

Most foods at our grocery stores comes in plastic packaging

PROBLEM

Children in our community have a lot of gum disease and cavities

PROBLEM

Only 20% of CEOs and leaders in my city are women

PROBLEM

An invasive plant species is taking over a lake

PROBLEM

My town has had many floods in the past few years

PROBLEM

It's hard for teachers to recognize child abuse

PROBLEM

There are less bees in our garden

PROBLEM

Children have drowned in unsupervised pools

PROBLEM

There is no soap for handwashing at our school

Race to make a healthy dataset!

It's up to you to make sure the data you use for your AI model is healthy! Practice identifying healthy data in this game.

1. As a team, choose one of the following as your goal:

    •   Best Pet Predictor

    •   Tornado (or any other natural disaster) Predictor

    •   or, choose one of your team's ideas from the last activity!

2. Race against your teammates to be the first to complete the boxes below to make a healthy dataset for your chosen problem!

What data do you want to gather?

_____

_____

Where or how could you collect the data?

_____

_____

What categories (predictions) of data will you include in your model?

_____

_____

How many examples would you collect for your dataset?

_____

_____

MAPPING YOUR JOURNEY

Map the path to your solution

Once you've identified which problem your team will work to solve and what your invention should do, use this activity to plan how to start building it!

As a team, answer the questions about your invention in the charts below. Write every idea that your team has!

What data do you need and where can you gather it from?

_____

_____

What kind of AI could find patterns in this data?

☐ numbers model   ☐ sound recognition

☐ text recognition   ☐ image recognition

What predictions will your model make?

_____

_____

What actions will be taken based on those predictions?

_____

_____

Draw your plan

Using the map you created on the previous page, draw a plan for your AI solution. Consider how it might gather and use different types of data to solve the problem you chose.

ETHICAL DETECTIVE

Questions for ethical detectives

Answer the questions on this and the next page to explore how your invention can have the most positive *and* *negative* impacts on your community and the world.

How could bias be removed from your datasets?

_____

_____

_____

What decisions does your invention make?

_____

_____

_____

What are all the actions that your invention could take?

_____

_____

_____

Could your invention make a mistake?

_____

_____

_____

Does your invention gather, use, or share sensitive data?

_____

_____

_____

How could your invention affect people negatively?

_____

_____

_____

_____

What changes could you make to avoid possible negative impacts?

_____

_____

_____

_____

_____

SEA OF DATA

Healthy data checklist

Use this checklist as you gather data to make sure that your data is collected ethically, and that the dataset as a whole is unlikely to have bias.

☐ The data I gathered is needed for my solution because

_____

_____

☐ The invention has _____ pieces of data in its dataset.

☐ The different situations included in our dataset are:

- Situation 1 _____

- Situation 2 _____

- Situation 3 _____

☐ My data is real. The data is gathered from trusted sources in these ways:

- Source: _____

  Way it was gathered: _____

- Source: _____

  Way it was gathered: _____

- Source: _____

  Way it was gathered: _____

☐ I have permission to use images, sound, text, or other information of the people I am gathering it from.

Congratulations!
You're halfway through the Technovation Families curriculum.

Continue your work at technovavation.org

#Technovation

Share your work with us!