

Welcome Stellar Teacher! Let's Grow Some Astronauts.

T-MINUS LAUNCH SITE



Over the past number of years we have been sending objects and people up into space. This is no small feat and requires the monitoring and analysis of many variables to ensure a successful launch. One very important aspect of launching rockets is something that you experience everyday- the weather! At the StarAcer Academy, we live in a very challenging environment. Some might even say, not the best location for rocket launching. That is why we will need your research and analytical skills to complete the following mission.

MISSION CONTROL COMMENTS (TEACHERS CORNER)



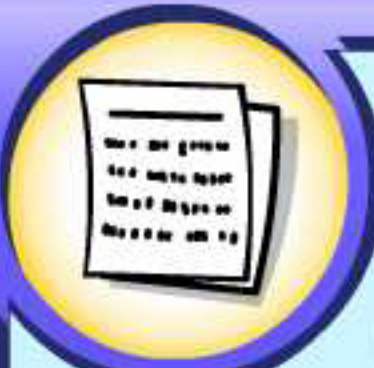
CURRICULUM OUTCOMES

Weather	Students will be able to identify key weather related terms.
	Students will be able to collect data and present information clearly in graphs.
	Students will be able to draw conclusions from data collected.
	Students will recognize that there are trends that typically occur in annual weather.
	Students will be able apply the information they have collected and the conclusions they have drawn from that data to a specific problem.



TIME FLOW

A Find the Data	2 x 45 minutes
B Get it Together	2 x 45 minutes
C The Big Bang - Making Connections	20 minutes



EXTRA RESOURCES

StarAcers.com has links for your mission!
A scientific report outline in the Common Documents
Student and teacher rubrics

SUGGESTED RESOURCES

SUGGESTED GROUP PRESENTATION RESOURCES

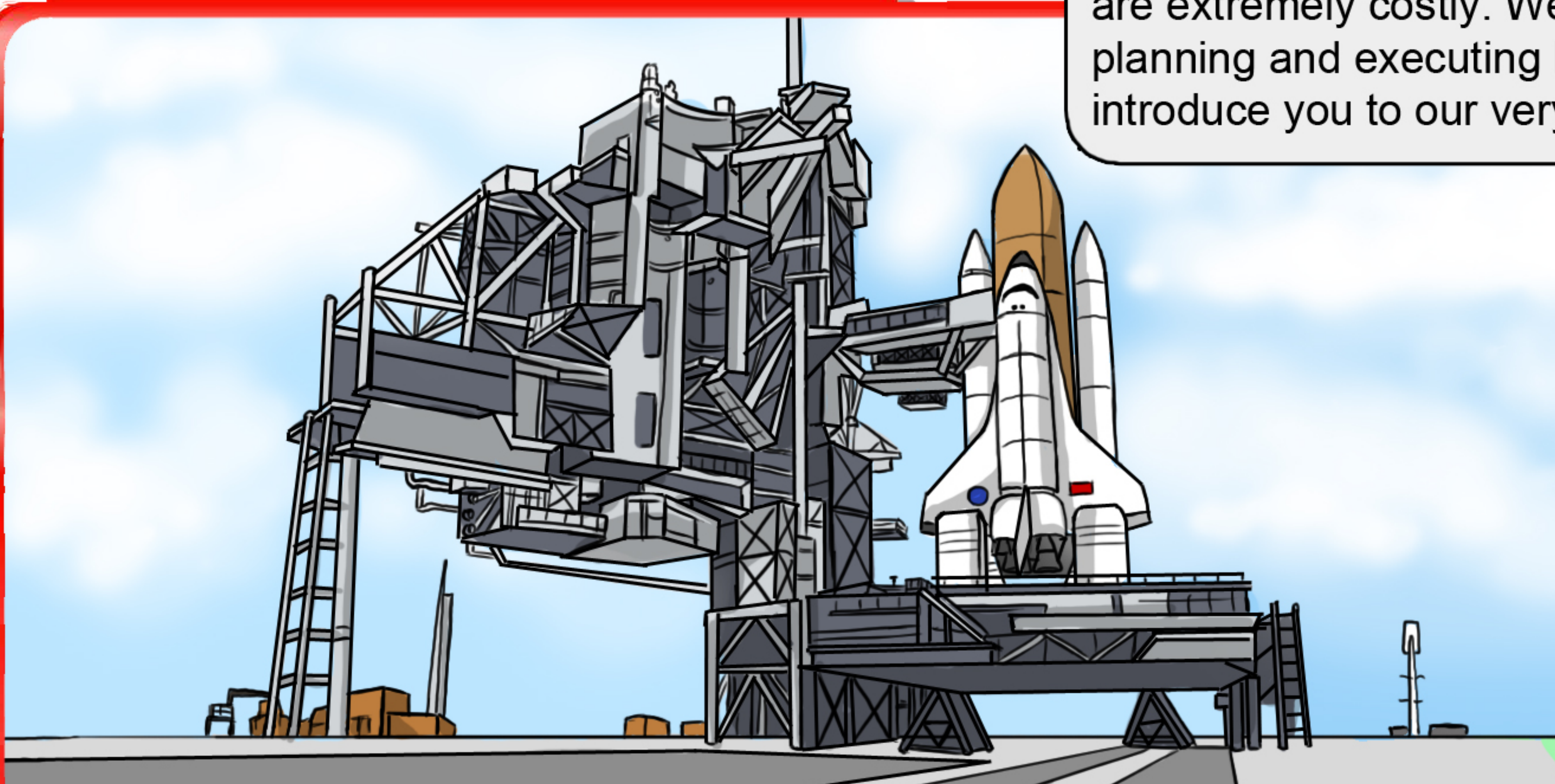
Use of the Internet to find weather data is highly recommended. The Environment Canada Climate Data and Information Archive has the information that will be useful for the students. Other websites can also be utilised.

(StarAcers website should be a resource for web links)

- Depending on the number of students, it may require and be beneficial to pair up students to cover all topic areas.
- Invite in other teachers, parents, and guests to be part of the audience for the Roundtable.

T-MINUS LAUNCH SITE

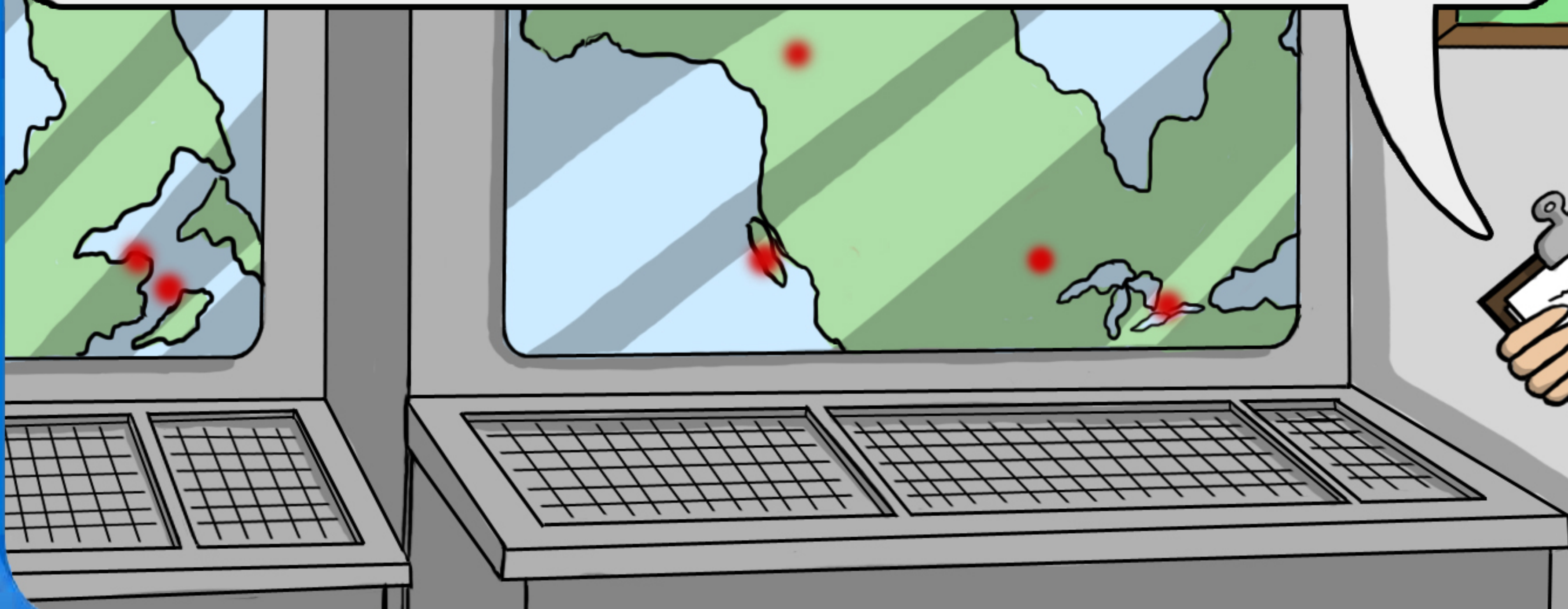
PART 1 - THE BRIEFING ROOM



“Good Morning **StarAcers**. My name is **Ethan Emery**. I’m a **StarAcer** graduate **exonaut**. Your mission is to determine the ideal window of opportunity to launch a StarAcer rocket into outer space. Keep in mind, aborted launches are extremely costly. We need to ensure we can have near perfect success in planning and executing launches. With that being said **StarAcers**, I will introduce you to our very own in-house meteorologist, **Jennifer Thompson**.”



“Hello StarAcers. We have some serious data collection and analysis ahead of us. Your job will be to determine the best month and location for the next StarAcer launch. You will need to research weather data from the following locations: **Tofino (British Columbia), Whitehorse (Yukon), Portage la Prairie (Manitoba), Windsor (Ontario), Gaspé Bay (Quebec)** and **Charlottetown (PEI)**. You can access Environment Canada’s National Climate Data and Information Archive with which you will analyse historical weather data in order to make a prediction. The ideal launch conditions are clear skies with prevailing winds up to 35-62 km/h as long as they are not gusting. The launch time can be both day or night with temperatures between 9 degrees Celcius and 37 degrees Celcius. Happy researching, don’t let your thoughts get clouded!”



PART 2 - THE POCKET GUIDE TO WEATHER CONDITIONS

Prevailing Winds

Degrees Celsius

Environment Canada

Mean

Wind Speed

Analysis

Minimum

Monthly Data Report

Vocabulary

Visibility

Gust

Extreme

Maximum

Direction of Maximum

Tofino British Columbia

Compass Degrees

Wind

Prediction

Data

Bar / Line Graph

Mission 004: T-Minus Launch Site

Earth and Space Sciences: Weather and Weather Watch

4BC, 4YK, 5AB, 5SK, 5MB, 5NB, 5NS, 5PEI, 5NFLD, 5NWT, 5NU, 6QC

T-MINUS LAUNCH SITE



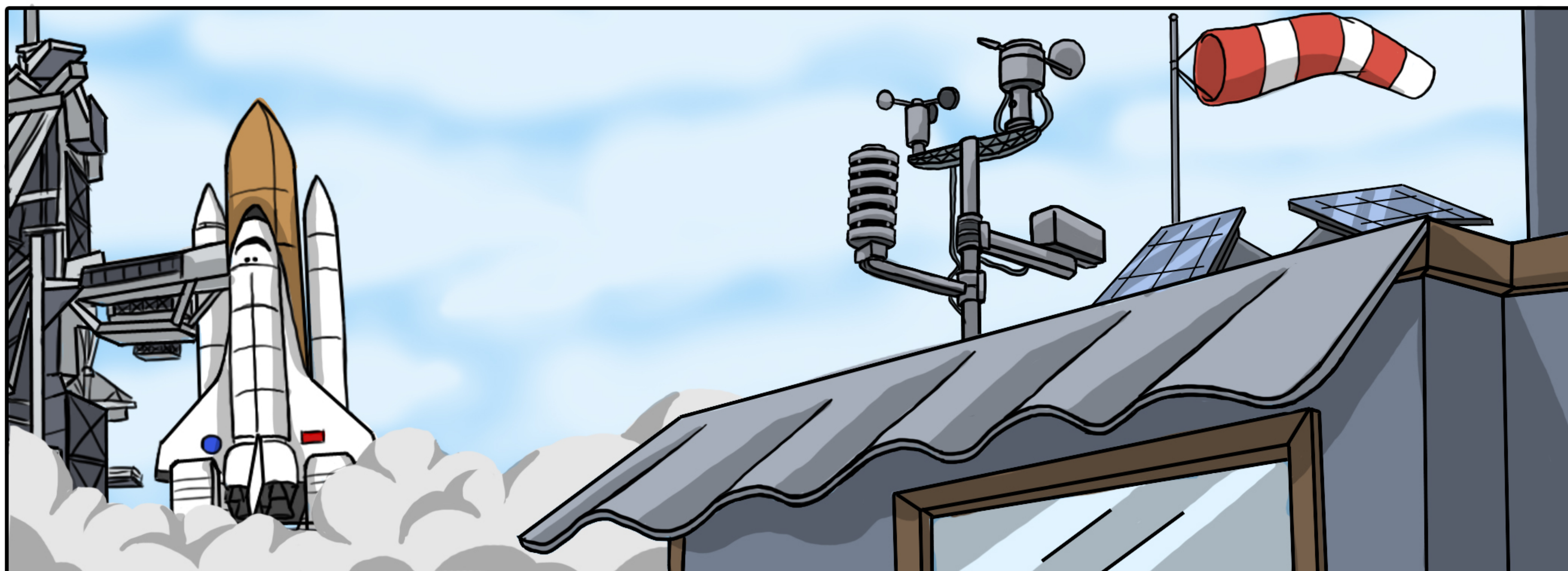
A. PART 3- FIND THE FACTS

Your mission will be to collect weather data. The guidelines for your research are as follows:

- 6 different locations
- Pick 3 years from the last 10 years
- Graphing monthly averages for each year:
 - Daily Max/Min Temp
 - mm precipitation
 - Winds
 - Hours of sunshine
 - Visibility

B. PART 4 - GET IT TOGETHER

Present the data in the form of graphs that clearly show monthly averages for the 3 years chosen. Be sure to title and label each graph and have an appropriate scale.



Mission 004: T-Minus Launch Site

Earth and Space Sciences: Weather and Weather Watch

4BC, 4YK, 5AB, 5SK, 5MB, 5NB, 5NS, 5PEI, 5NFLD, 5NWT, 5NU, 6QC

T-MINUS LAUNCH SITE

C. THE BIG BANG - MAKING CONNECTIONS

Having now reviewed your data it's time to make an informed decision as to the best location for the next StarAcer launch site. Be sure to create a convincing argument based on the data you've collected.



DO YOU MEASURE UP?

Get a rubric from Mission Control. How do you measure up based on the work that you have just completed in Mission 004?



WANT MORE ADVENTURE?

Want a challenge? Try answering these questions:

- Can you now determine a specific day within your chosen month for a launch date?
- What other factors other than weather, can effect the location of a launch site?

T-MINUS LAUNCH SITE

RECORD YOUR OBSERVATIONS:



This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.