Whyville Space Science Teacher's Guide

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Chapter 1:
Instruction for Teacher Registration & Login Procedures for Whyville

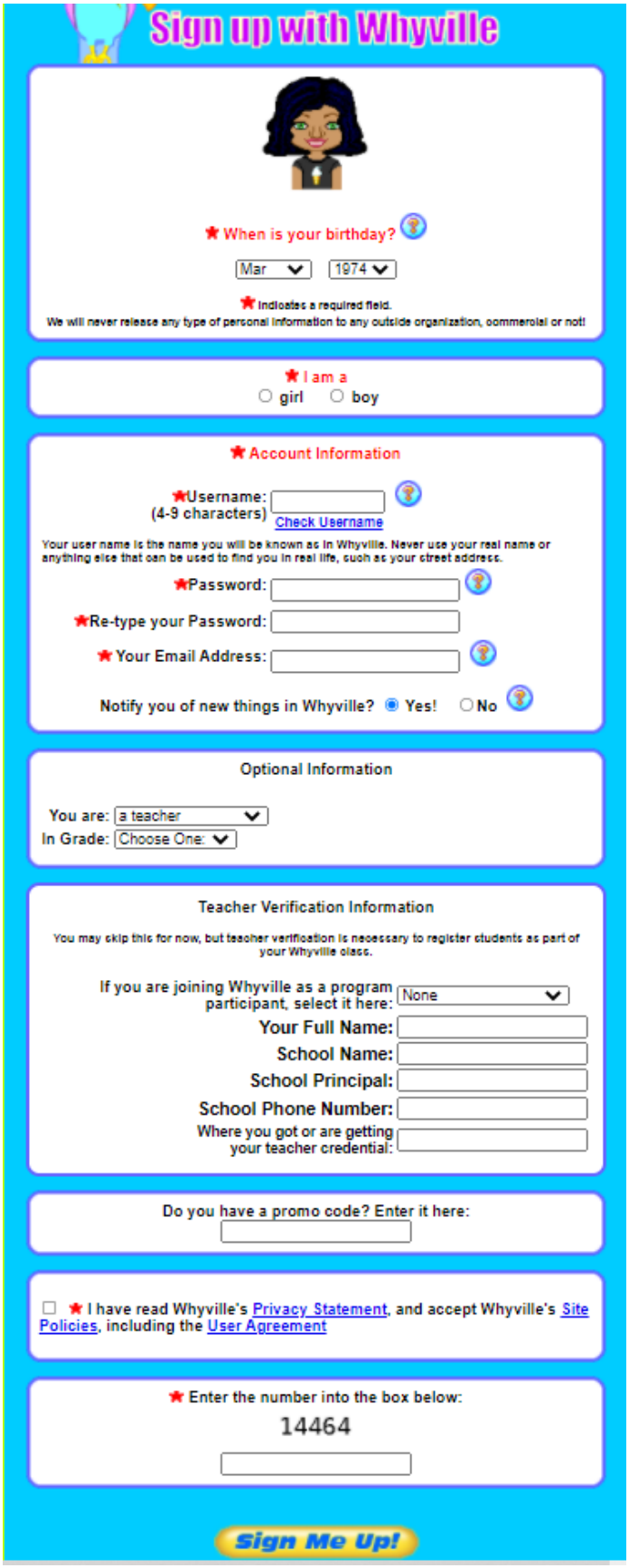
Step 1:
http://b.whyville.net/smmk/untnasa/main

Step 2:
Click on **Create a new account**

Step 3:

Select your **Birth Month and Birth Year**

Step 4:



Should already be populated from the previous step.

Please select your gender.

Create a username and password. You are also able to check availability by clicking on the blue link below the username box. See Step 5 below.

See Step 6

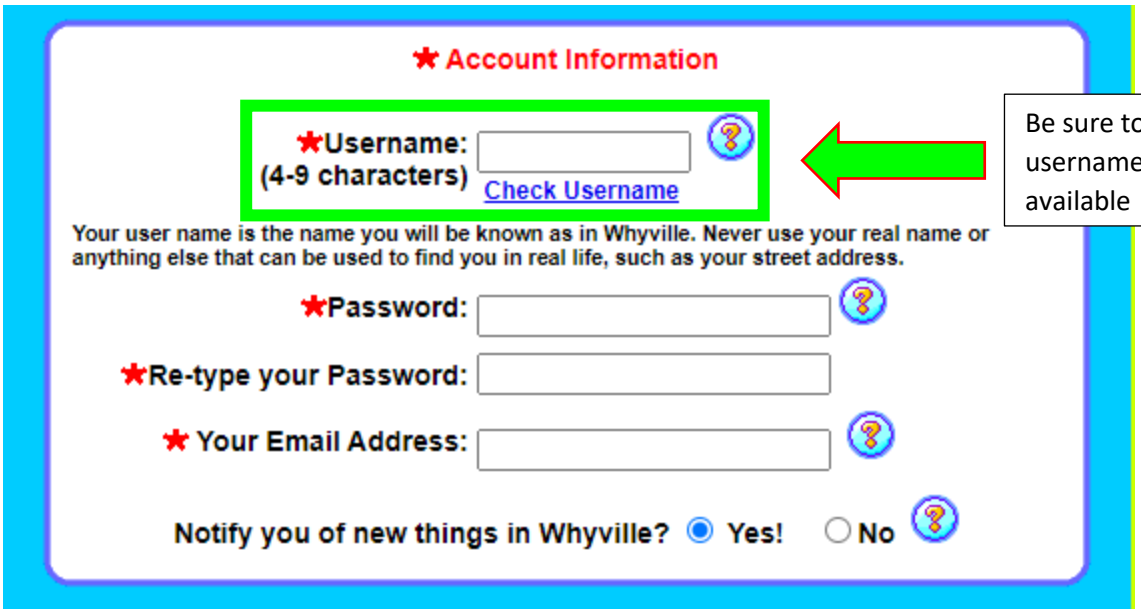
Be sure to fill this section out thoroughly as all information is checked.

Skip this step. No promo code needs to be entered.

Be sure to click on the box.

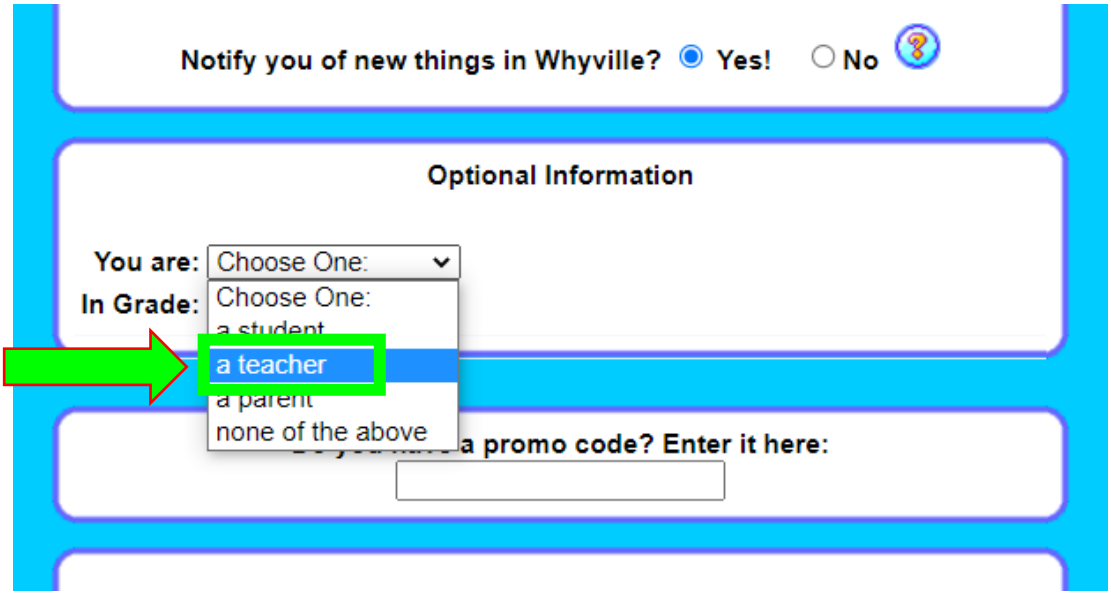
Click on Sign Me Up!

Step 5:



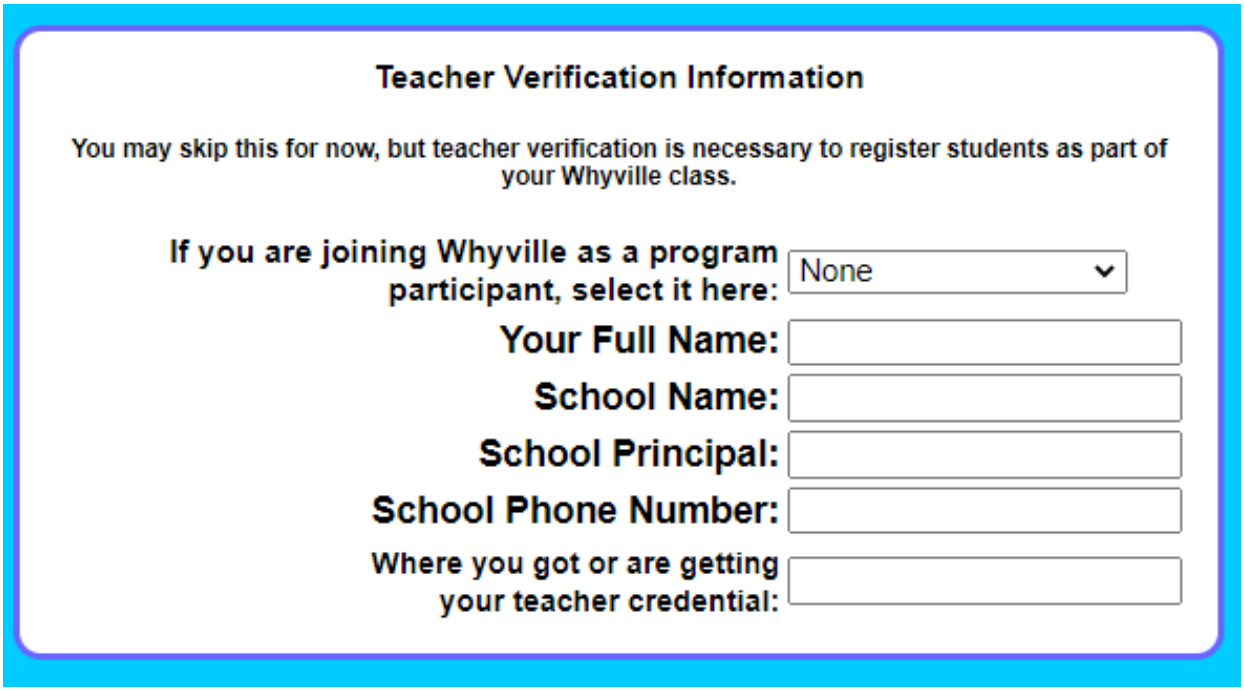
Step 6:

Be sure to select "a teacher" from the drop down menu.



Step 7:

You must fill out each blank in the teacher verification section



Note:

It will take 2-3 days to gain teacher access to Whyville pending approval.

Login Procedure

Step 1:

Access Whyville with the following link: http://b.whyville.net/

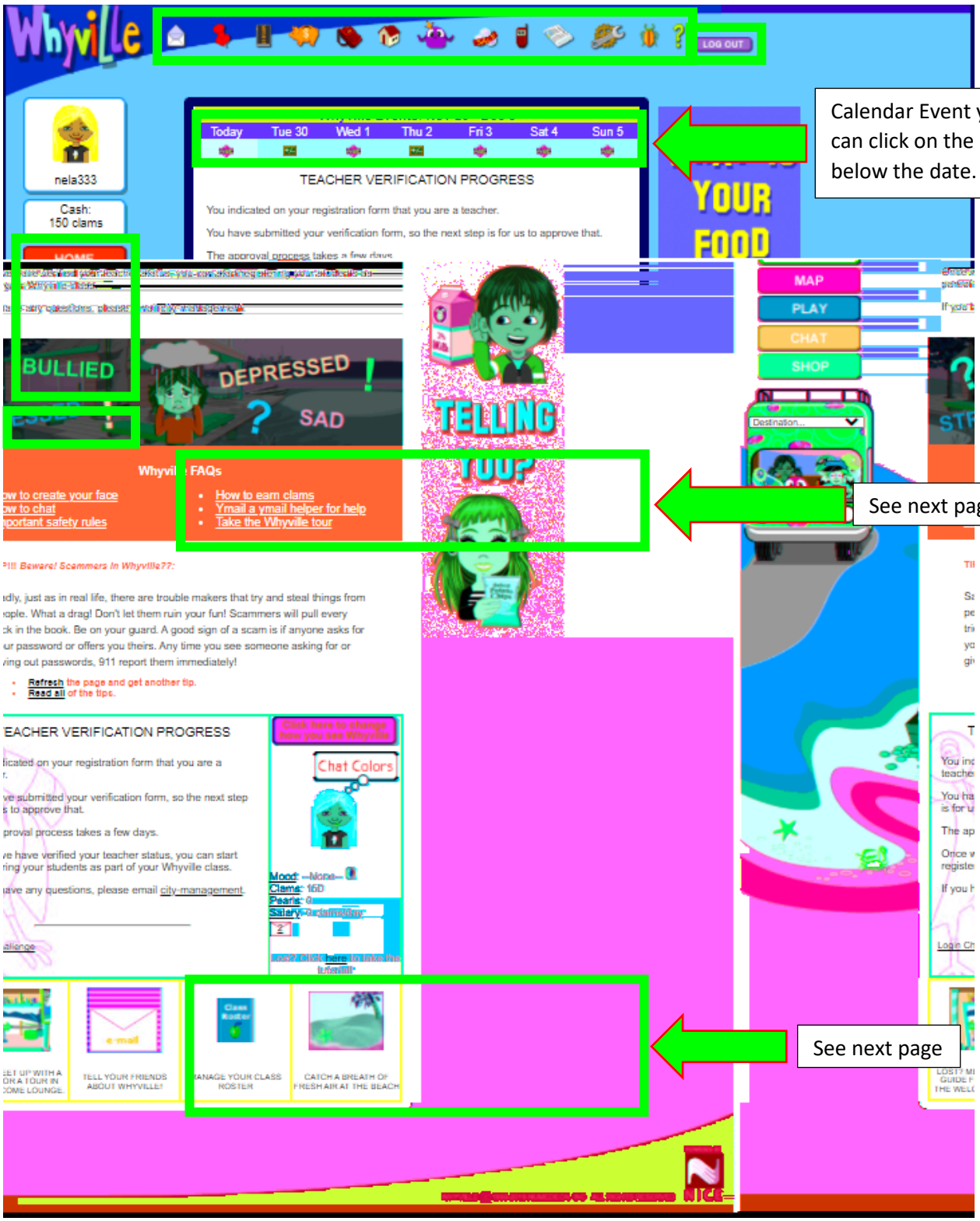
Step 2:

Type in your username and password and click Login.

See next page

Log Out

Step 3:

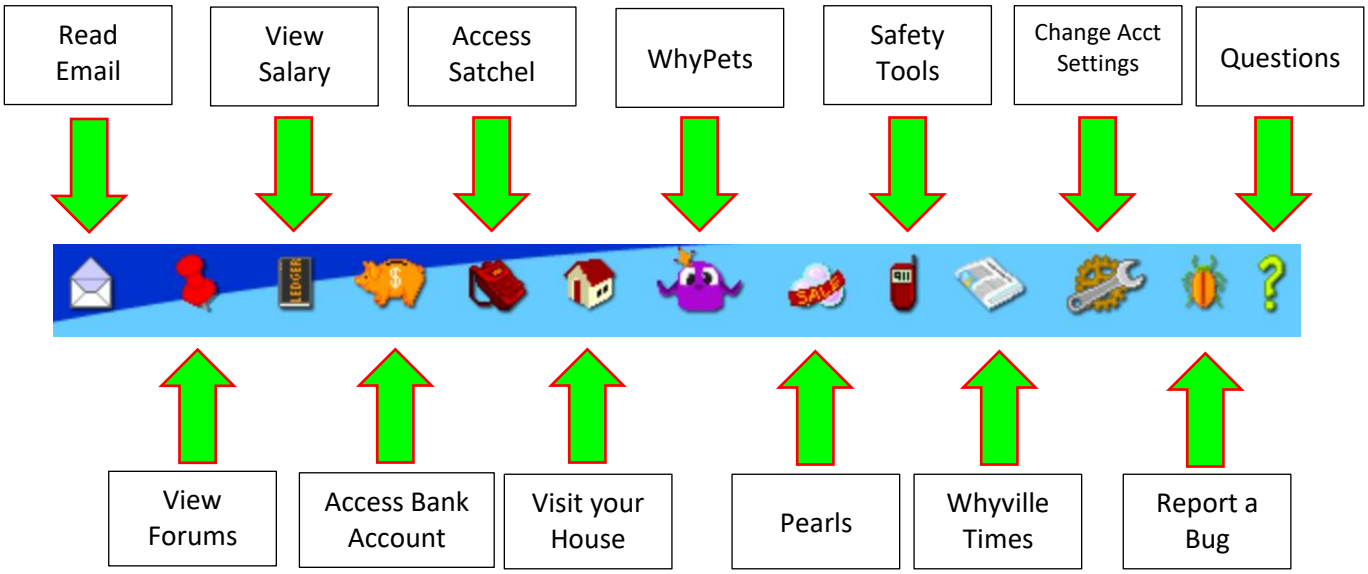


Calendar Event you can click on the icon below the date.

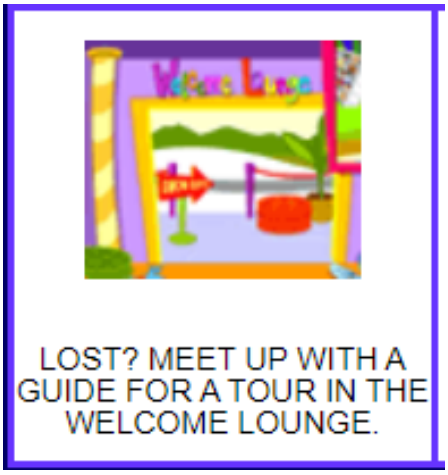
See next page

See next page

See next page

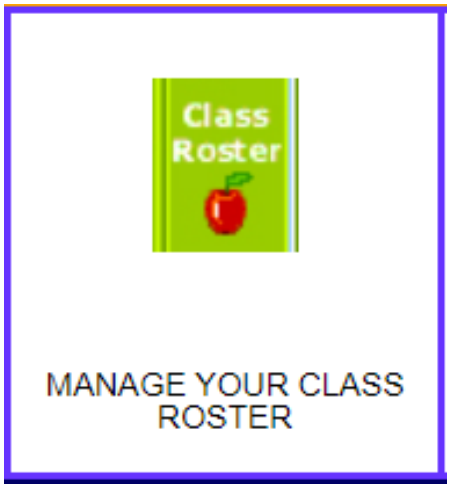

Read Email
View Salary
Access Satchel
WhyPets
Safety Tools
Change Acct Settings
Questions
View Forums
Access Bank Account
Visit your House
Pearls
Whyville Times
Report a Bug


Whyville Events: Nov 29 - Dec 5
Today
Tue 30
Wed 1
Thu 2
Fri 3
Sat 4
Sun 5
Math Expressions
LETTER SQUASH



Navigates you to the Welcome Lounge

Opens Email in Outlook



Manage your roster, view student list, teacher tools and much more!

The right most options, changes through various options: Parents Page, Virtual Tour, Learn about games offered, and an option to play a game.

Navigation Tools in Whyville:

Clicking **Home** always takes you to the Home page

When you click on the **Map** button, you will be taken to a page that allows you to explore the various aspects of Whyville.

Click on the various items to gain more information

Be sure to click on each tab to discover more details.

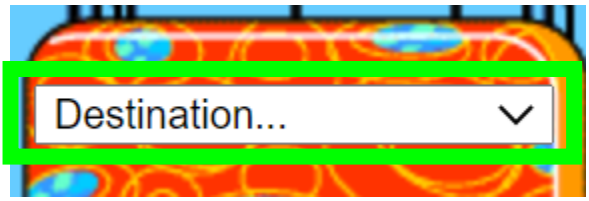
PLAY

The **Play** button takes you to a multitude of games to choose from. Click on each one and explore the many possibilities Whyville offers.

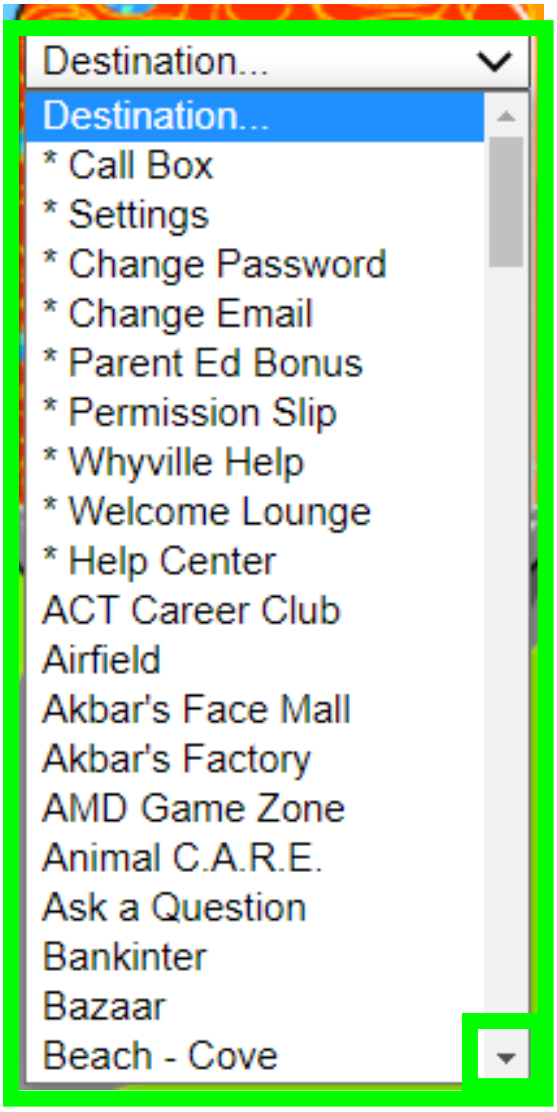
CHAT

The **Chat** button allows you to click on a variety of locations and chat with different people within that location.

Customize and purchase items for projects all in the **Shop** button.



Destination leads to a drop-down menu of options, see below.



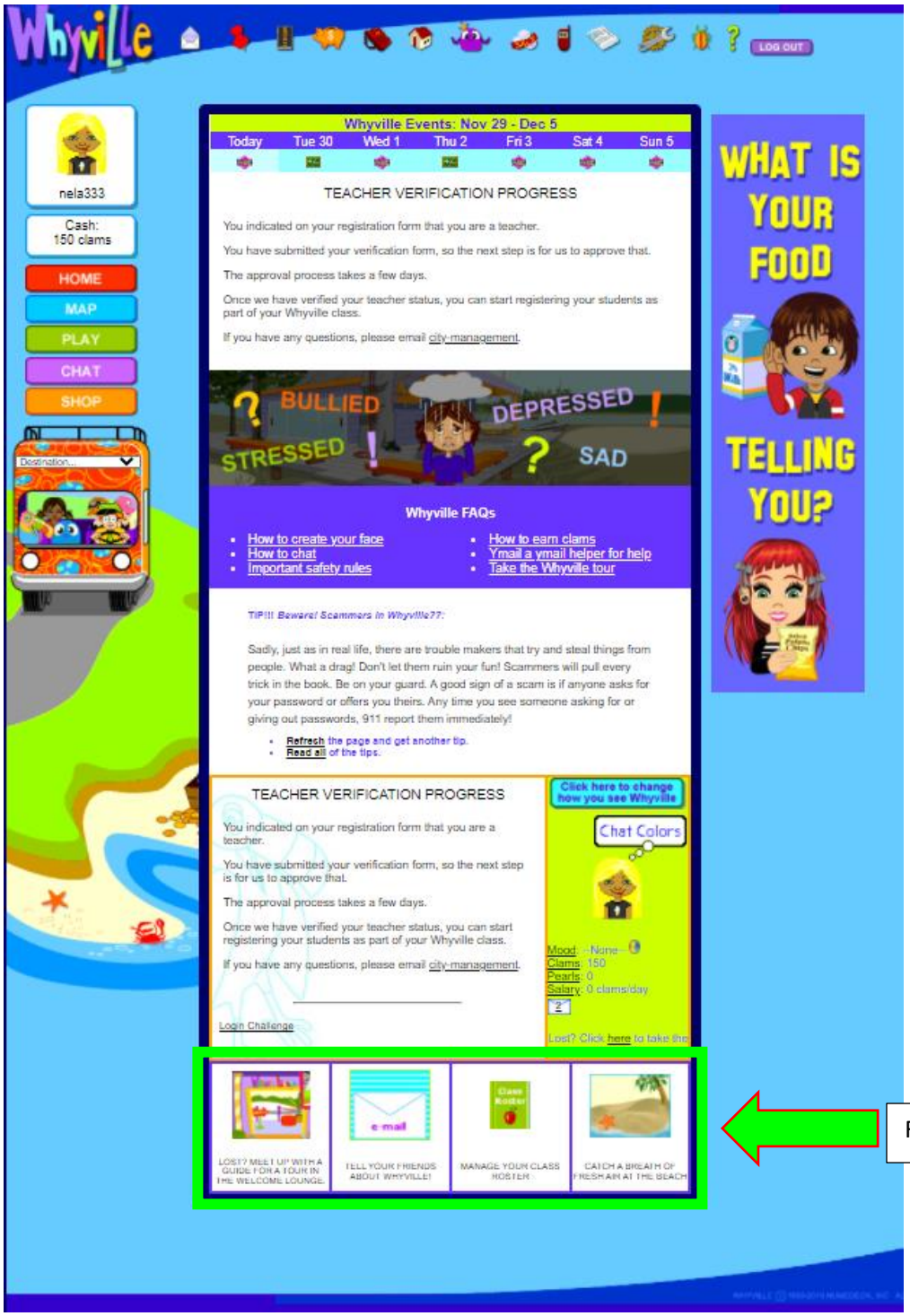
Destination offers numerous options to choose from.

Don't forget to scroll down to see all of the options available to you.

Chapter 2:
Classroom Assignment

Step 1:

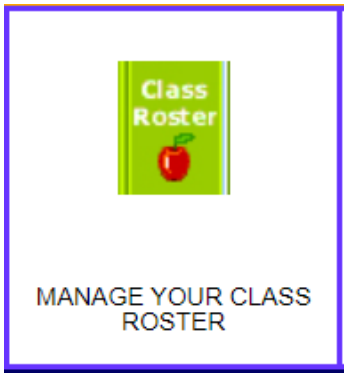
On the bottom of the **Home** page you will find a menu of buttons.



From this menu of options

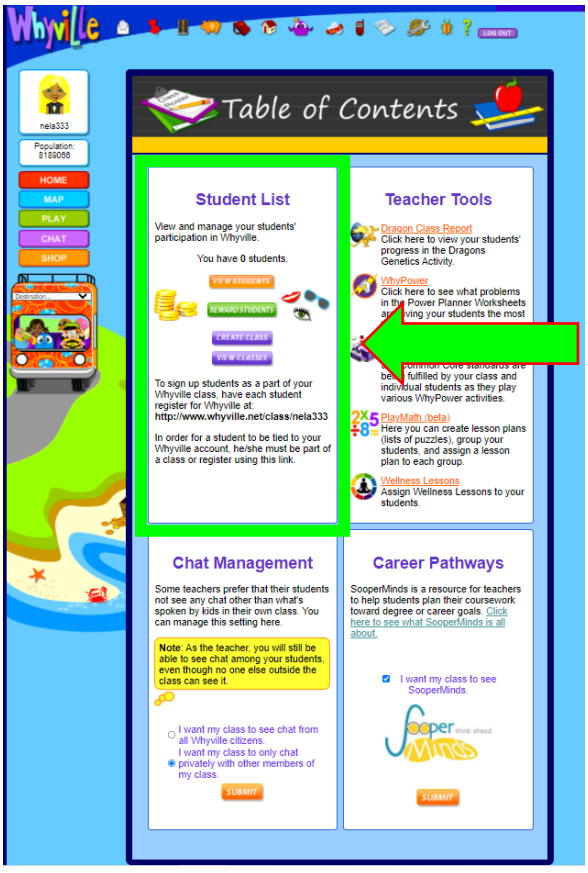
Step 2:

Click on **Manage Your Class Roster**.



Step 3:

Next, you will see a **Table of Contents** for educators.



Student List: View and manage your students' participation in Whyville.

Step 4:

Your unique URL is provided in the **Student List** section.

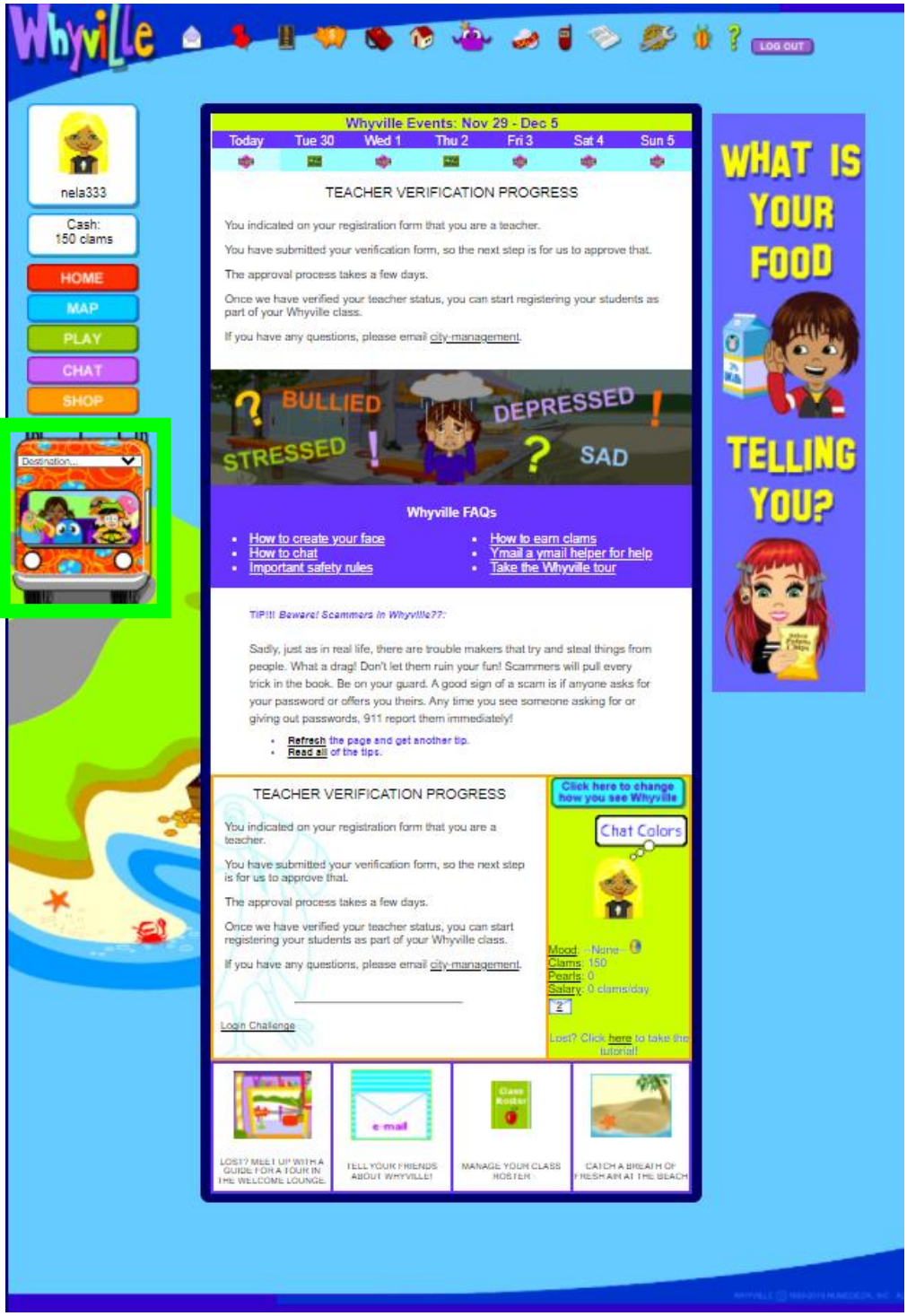
To sign up students as part of your Whyville class, have each student register for Whyville using your unique URL.

Chapter 3:
Mars Mission Control

Step 1:

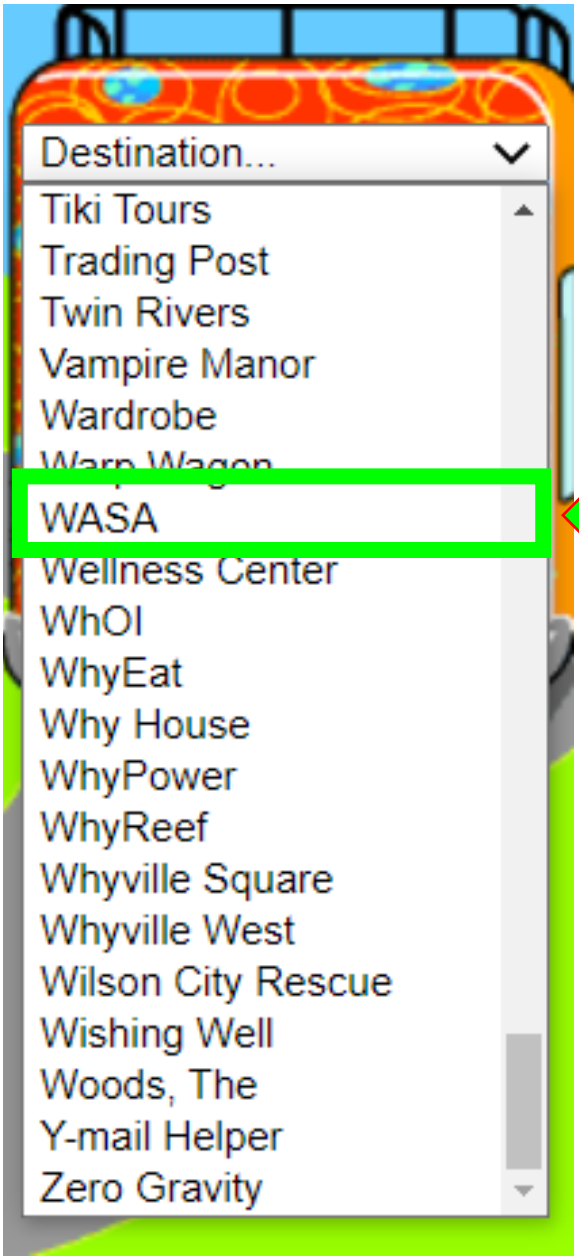
From the **Home** page, click on the drop-down menu of **Destinations**.

Click on the down arrow to access a menu of items.



Step 2:

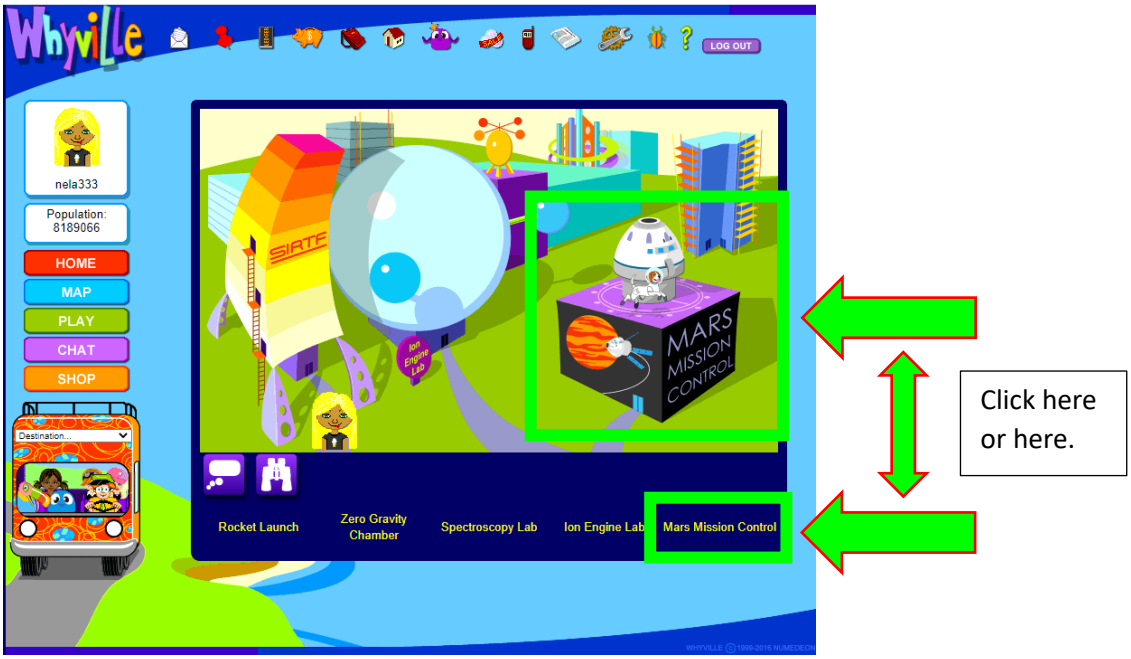
To access **WASA** use the Destinations drop-down menu.



Navigate to **WASA.**

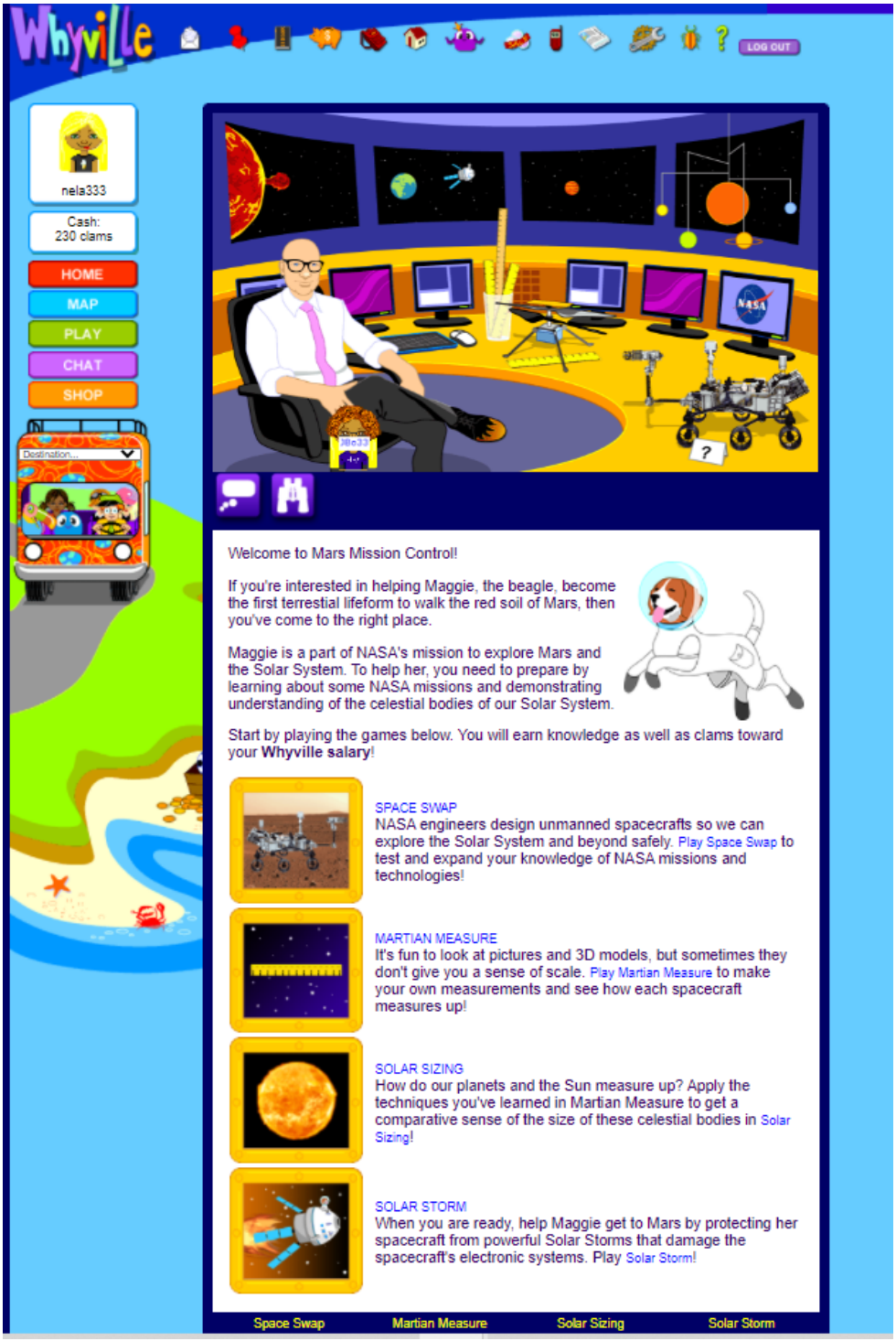
Step 3:

Click on **Mars Mission Control** to access the games.



Step 4:

Here you will see the launch page for Mars Mission Control.

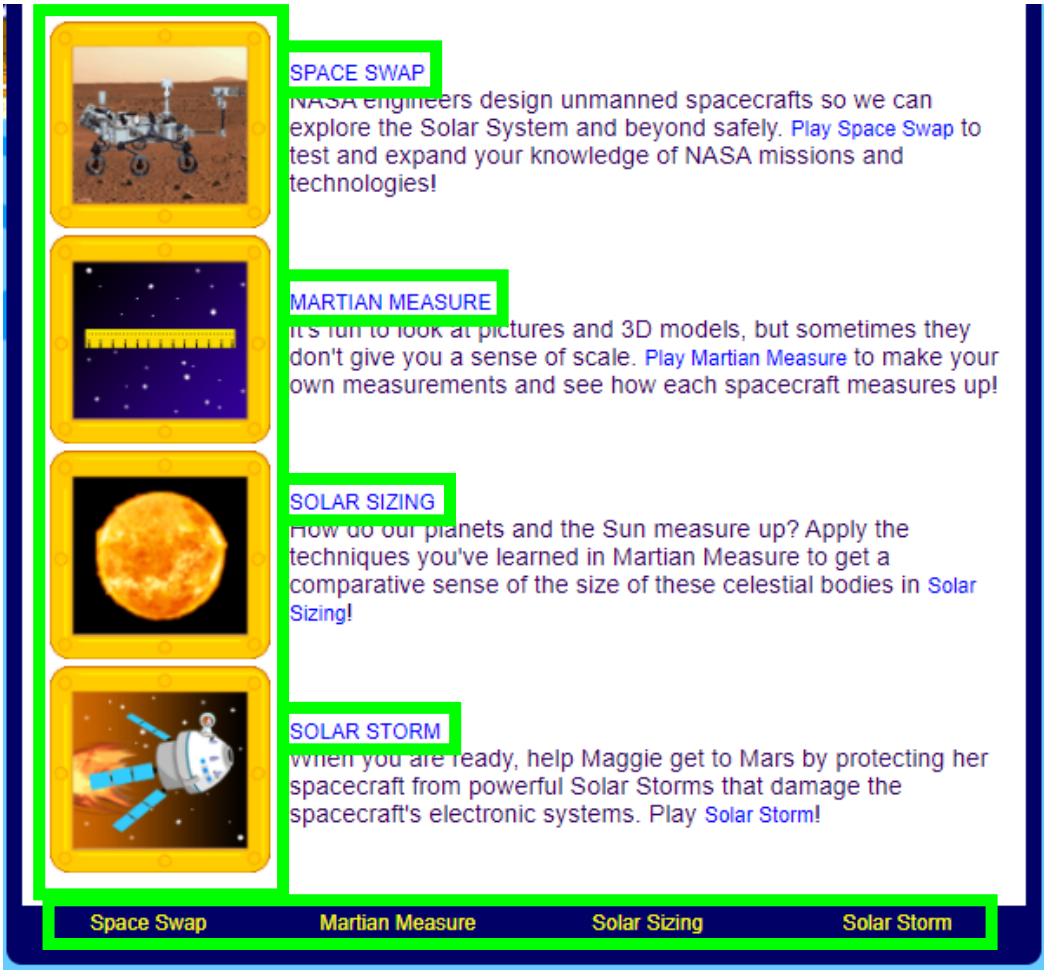


Step 5:

After navigating to this screen, hover over the various items in the control room and discover which ones lead you to a game.

Step 6:

Alternatively, you can click on the yellow boxes, blue hyperlinks (also found in description), or bottom navigation menu to go directly to a game.



Chapter 4:
Whyville WASA Lesson Plans

Whyville WASA Lesson Plans

This set of lessons focuses middle school-aged students on the mathematical concept of *estimation*. Students will learn aerospace concepts and terminology in the first lesson before applying the concept of estimation to the remaining three aerospace-themed lessons.

The lessons are intended to engage learners through the use of digital learning games and the intrigue of space. There is one lesson provided for each of the four digital games as follows:

Lesson 1: Space Swap

Lesson 2: Martian Measure

Lesson 3: Solar Sizing

Lesson 4: Solar Storm

Needed technology:

1) Whyville
2) Spacecraft AR

Apps:

Spacecraft AR is an app that acts as a supplement to each of the four games and is available on Apple's App Store and Google Play.

Spacecraft AR 4+
Jet Propulsion Laboratory
Designed for iPad
Free

Lesson 1: Space Swap

Concept:

There are several un-crewed space flight vehicles that help NASA complete its missions. Students will learn terminology and how each vehicle functions.

Objectives:

The learning objectives of the games included awareness and knowledge of NASA missions, developing knowledge and skills of measurement and scaling, applying measurement for planetary comparisons in the solar system, and a fine motor skill used during prediction and action.

Students will be able to:

- Identify the five space flight vehicles described in the game
- Describe at least one reason un-crewed space flight is valuable

Standards Addressed (Grades 6-8):

- TEKS (A)(2) (C) select … techniques, including mental math and estimation, and number sense as appropriate, to solve problems
- NGSS Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. (MS-ETS1-2).

Activity:

NASA's KSNN™ 21st Century Explorer 30-second newsbreak, "What will replace the space shuttle?" (Download the newsbreak at http://ksnn.larc.nasa.gov.)

This activity will help your students answer the question:
What elements are involved in designing and building a Crew Exploration Vehicle that will be a model for future space exploration?

During this activity, students will:

1. Design a model CEV for future space exploration.
2. Develop a conclusion based upon the results of this design.
3. Compare individual results to class results by looking for patterns.

Assessment:

1. What stood out to you about each of the un-crewed vehicles?
2. Why is it important to have un-crewed capabilities in space exploration?
3. What purpose did the __(vehicle)__ serve?
4. Evidence for understanding could include having students being placed into small groups to discuss how each vehicle's design lends itself to the vehicle's mission.

Additional Resource:

https://www.nasa.gov/centers/dryden/news/X-Press/stories/2005/xtra_072005_PlanetaryFlightVehicle.html

Lesson 2: Martian Measure

Concept:

In this game, students will measure space items to get a sense of scale.

Objectives:

The learning objectives of the games included awareness and knowledge of NASA missions, developing knowledge and skills of measurement and scaling, applying measurement for planetary comparisons in the solar system, and a fine motor skill used during prediction and action.

Standards Addressed (Grades 6-8):

- TEKS (A)(2) (C) select … techniques, including mental math and estimation, and number sense as appropriate, to solve problems
- NGSS Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. (MS-ETS1-2).
- 5-ESS1-1
- MS-ESS1-1
- MS-ESS1-3

Activity:

Solar System Scroll: https://www.jpl.nasa.gov/edu/teach/activity/solar-system-scroll/

Materials:

- Roll of accounting paper or toilet paper
- Markers

This activity will help your students answer the question:
It is fun to look at models, but do we know how much space is in space? What is the actual scale of items in the solar system?

During this activity, students will:

- Make predictions about size, dimension and proximity of planets in the solar system by drawing on strips of paper or toilet paper.
- Learn the relative locations of planets to the sun.

Assessment:

1. What surprised you about the proximity of planets to the sun?
2. How did learning about scaling differ from looking at models?
3. Evidence for understanding could include having students arrange modelled objects or pictures in correct scale and proximity to a spherical object representing the sun.

Lesson 3: Solar Sizing

Concept:

How do our planets and the Sun measure up? Students will apply the techniques they've learned in Martian Measure to get a comparative sense of the size of these celestial bodies in Solar Sizing.

Objectives:

The learning objectives of the games included awareness and knowledge of NASA missions, developing knowledge and skills of measurement and scaling, applying measurement for planetary comparisons in the solar system, and a fine motor skill used during prediction and action.

Standards Addressed (Grades 6-8):

TEKS (A)(2) (C) select … techniques, including mental math and estimation, and number sense as appropriate, to solve problems

NGSS Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. (MS-ETS1-2).

Activities:

Measuring the Distance:

https://www.nasa.gov/audience/foreducators/k-4/features/F_Measuring_the_Distance_Student_Pages.html

Mars Activities:

Chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/viewer.html?pdfurl=https%3A%2F%2Fmars.nasa.gov%2Fclassroom%2Fpdfs%2FMSIP-MarsActivities.pdf&clen=6646763&chunk=true

Assessment:

Evidence for understanding could include having students describe the scale between planets, and why it is important for us to understand how much space is in space!

Resource:

https://www.nasa.gov/education/materials/

Lesson 4: Solar Storm

Concept:

Students have learned estimating, measurement, and scaling. Students can now apply what they have learned in the three previous games to help Maggie get to Mars by protecting her spacecraft from powerful Solar Storms that damage the spacecraft's electronic systems.

Objectives:

The learning objectives of the games included awareness and knowledge of NASA missions, developing knowledge and skills of measurement and scaling, applying measurement for planetary comparisons in the solar system, and a fine motor skill used during prediction and action.

Standards Addressed (Grades 6-8):

- TEKS (A)(2) (C) select … techniques, including mental math and estimation, and number sense as appropriate, to solve problems
- NGSS Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. (MS-ETS1-2).

Activities:

1. Mission to Mars:
   https://www.jpl.nasa.gov/edu/teach/activity/mission-to-mars-unit/

2. Mars In-Depth:
   Learn about orbit, rotation, and of the “Red Planet”.

   https://solarsystem.nasa.gov/planets/mars/in-depth/

Assessment:

1. Why is Mars called “The Red Planet”?
2. Why is NASA attempting missions to Mars?
   Evidence for understanding could include having students make a graphic or artistic representation of Mars and explain their understanding of Mars to a small group or to the class.