

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**



The image shows a sign-up form for Whyville. At the top left is a colorful toucan bird. The title "Sign up with Whyville" is in pink. Below it is a cartoon boy's head. The main question is "★ When is your birthday?" with a question mark icon. Below this are two dropdown menus labeled "Month" and "Year", both highlighted with a green box and a red arrow pointing to them. A red star icon indicates a required field. At the bottom, a privacy statement reads: "We will never release any type of personal information to any outside organization, commercial or not!"

★ When is your birthday? ?

Month Year ←

★ indicates a required field.

We will never release any type of personal information to any outside organization, commercial or not!

Step 4:

Sign up with Whyville

★ When is your birthday?

Mar 1974

★ I am a

girl boy

★ Account Information

★ Username: (4-9 characters) [Check Username](#)

Your user name is the name you will be known as in Whyville. Never use your real name or anything else that can be used to find you in real life, such as your street address.

★ Password:

★ Re-type your Password:

★ Your Email Address:

Notify you of new things in Whyville? Yes! No

Optional Information

You are:

In Grade:

Teacher Verification Information

You may skip this for now, but teacher verification is necessary to register students as part of your Whyville class.

If you are joining Whyville as a program participant, select it here:

Your Full Name:

School Name:

School Principal:

School Phone Number:

Where you got or are getting your teacher credential:

Do you have a promo code? Enter it here:

★ I have read Whyville's [Privacy Statement](#), and accept Whyville's [Site Policies](#), including the [User Agreement](#)

★ Enter the number into the box below:

14464

Sign Me Up!

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:

★ Account Information


★ Username: 
(4-9 characters) [Check Username](#)

Your user name is the name you will be known as in Whyville. Never use your real name or anything else that can be used to find you in real life, such as your street address.

★ Password: 

★ Re-type your Password:

★ Your Email Address: 


Notify you of new things in Whyville? Yes! No 

Note: A green box highlights the Username field and the 'Check Username' link. A green arrow points from a text box to the Username field.

Be sure to check your username to see if it is available

Step 6:

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

Notify you of new things in Whyville? Yes! No 

Optional Information

You are:

In Grade:

a promo code? Enter it here:

Note: A green arrow points to the 'a teacher' option in the dropdown menu.

Step 7:

You must fill out each blank in the teacher verification section

Teacher Verification Information

You may skip this for now, but teacher verification is necessary to register students as part of your Whyville class.

If you are joining Whyville as a program participant, select it here:

Your Full Name:

School Name:

School Principal:

School Phone Number:

Where you got or are getting your teacher credential:

Note:

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

Login Procedure

Step 1:

Access [Whyville](http://b.whyville.net/) 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:



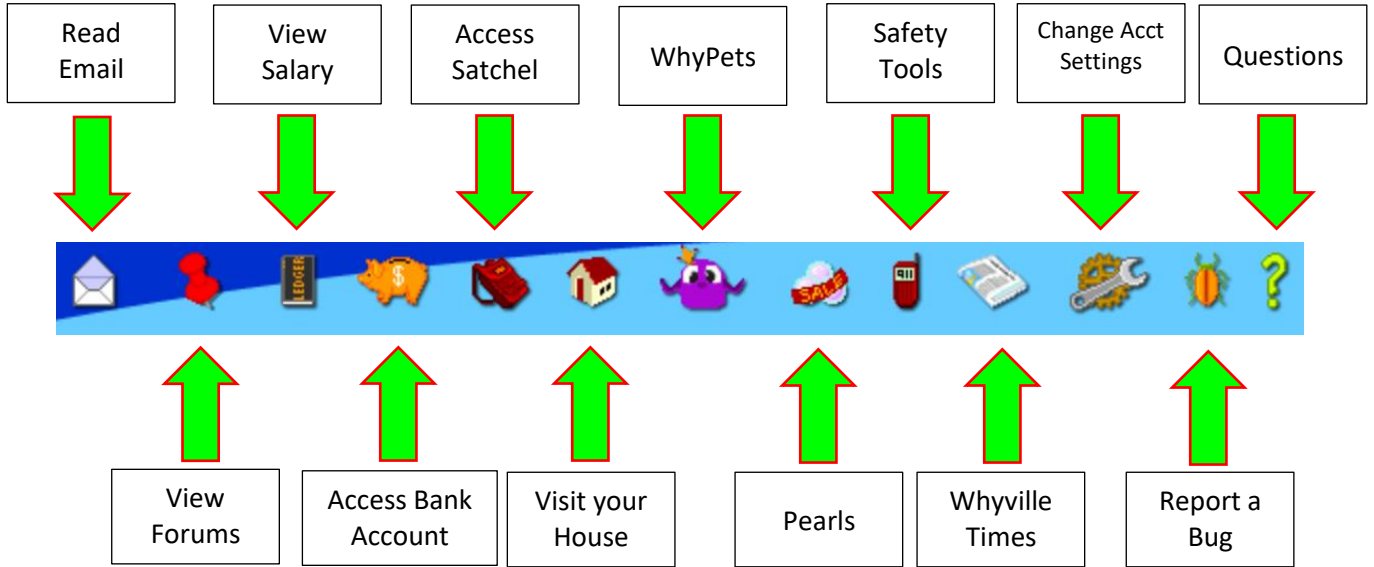
The screenshot shows the Whyville website interface. At the top, there is a navigation bar with icons for home, mail, chat, and other features. A 'LOG OUT' button is visible in the top right. Below the navigation bar, a user profile for 'nela333' is shown with a 'Cash: 150 clams' indicator. A 'TEACHER VERIFICATION PROGRESS' section is highlighted with a green box, containing text about the approval process. To the right, a calendar for the week of Tue 30 to Sun 5 is highlighted with a green box, with an arrow pointing to it from a text box that says 'Calendar Event you can click on the icon below the date.' Below the calendar, there are several promotional banners, including one for 'TELLING TOO?' and another for 'BULLIED DEPRESSED! SAD'. A sidebar on the right contains buttons for 'MAP', 'PLAY', 'CHAT', and 'SHOP'. At the bottom, there is a 'TEACHER VERIFICATION PROGRESS' section with a 'Chat Colors' button and a 'Clear Koster' button. A green box highlights the 'Clear Koster' button, with an arrow pointing to it from a text box that says 'See next page'. Other text boxes with arrows point to various parts of the interface, including 'See next page' pointing to the left sidebar and another 'See next page' pointing to the bottom right area.

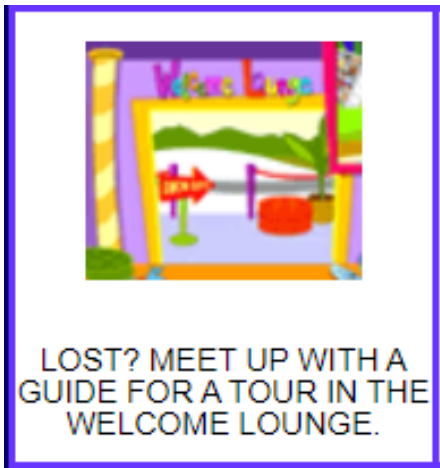
Calendar Event you can click on the icon below the date.

See next page

See next page

See next page





Navigates you to the Welcome Lounge



Opens Email in Outlook

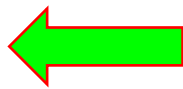
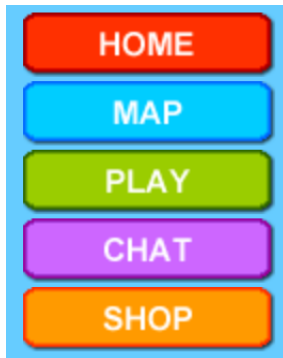


Manage your roster, view student list, teacher tools and much more!



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

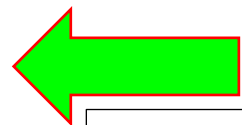
Navigation Tools in Whyville:



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.


Design a Green House!




Got Disk?


Manage Power Plants!


Are you a speed racer?


Visit Raven Island!

Playing in Whyville

	Vampire Power Stop the vampire from leeching power!		BIOlympics Master biomechanics and win the BIOlympics!		Egg Game Sort Dragon eggs for quick clams!		Dragon Castle Breed your own dragons to retrieve treasure!
	Wilson City Rescue Prevent accidents and protect the citizens of Wilson!		CareerQuest 500 jobs to pick from! Which will you choose? Architect? Detective? Zoologist?		Raven Island Play games and learn about fire safety!		Recycle Help clean up, recycle, and earn clams!
	Checkers Play checkers with people from around the world!		WAND Design, create, and publish WAND puzzles!		Green Build Design an energy-efficient house.		Scion Driving School Learn to drive in a 3D world.
	Peak Power Manage the power plants for a big city.		Reef Station Help the reefs stay healthy by keeping track of species that live in WhyReef!		Kalah Play an ancient African game based on seed sowing.		Ions Raise your salary by shooting charges into a goal!
	PlaneWorks Help build (and even design) planes for clams!		Getty ArtSets Gather works of art to make sets before your opponent does!		Scion RaceTrack Drive a Scion across obstacles and challenges!		Critter Care Care for lab animals and raise your salary!
	Simon Says Pay attention and be a Simon Says champ!		Whack-a-Virus Stop the viruses before they invade your cells.		Tic Tac Toe Classic game of 3 in a row.		Skater The faster your skater spins, the higher your salary!
	AALAS Solitaire Match up cards to learn about medical research.		Pets WhyPets -- own and care for your own furry friend.		Microbe War Play Microbe War and win clams!		Food Sort Help out in the Cafeteria and earn clams!
	WhyTunes Create your own hits and sell them for clams.		Botball Program your robot and compete!		Food Web Game Complete the WhyReef Food Web Challenges to earn clams!		Love/Hate Earn clams for knowing your friends!
	Shuffleboard Play Whyville's version of this popular game!		Dude! Where's My Shark? Track sharks around the world!				

-- For more games to play, click on your **Salary Ledger** in the **Top Tool Bar**. --

CHAT

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


Dine Outside!


Grab a bite!


Have you got game?


Take a Break at the Beach!


Start at the Square!

Chatting in Whyville

 <p>Beach Take a break and meet new friends at South Beach!</p>	 <p>Cafeteria Grab a bite, play games, or even invite friends to a banquet!</p>	 <p>Food Court Eat and chat al fresco in the Food Court!</p>	 <p>Getty Museum Now everyone can meet up at this famous museum!</p>
 <p>Girl Game Co. Hang out and learn about kids designing games!</p>	 <p>Help Center Meet other new Whyvillians and get advice from Helpers!</p>	 <p>Pool Party Stop on by and join the pool party!</p>	 <p>Playground Meet your friends at the playground!</p>
 <p>Snowboard Mountain Go snowboarding and skating all year round!</p>	 <p>Sportplatz Perfect place to toss the ball around or play frisbee!</p>	 <p>Sun Roof Sunbathe on the roof and enjoy the view!</p>	 <p>Waterfall Enjoy the lush scenery and meet new friends!</p>
 <p>Whyville Square Check out this historic destination. It's Whyville's first!</p>	 <p>The Woods Need a quiet moment? Visit this serene, snowy scene.</p>	 <p>WhyReef North Dive into WhyReef North and meet friends and fishes galore!</p>	 <p>WhyReef South Dive into WhyReef South and meet friends and fishes galore!</p>

-- For more places to go, click on the Destination Menu on the Bus. --

SHOP

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


Free Face parts at Grandma's


Drive away in a Scion today!


Your own Extreme Home Makeover!

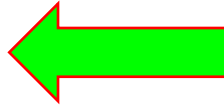
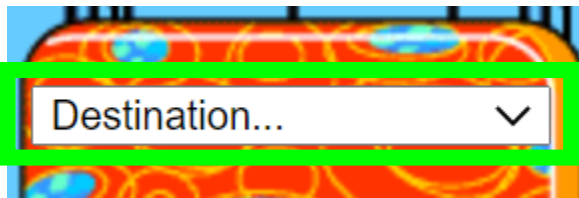

Start Saving Today!


Buy Pearls to access amazing features!

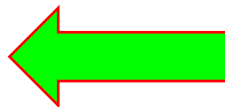
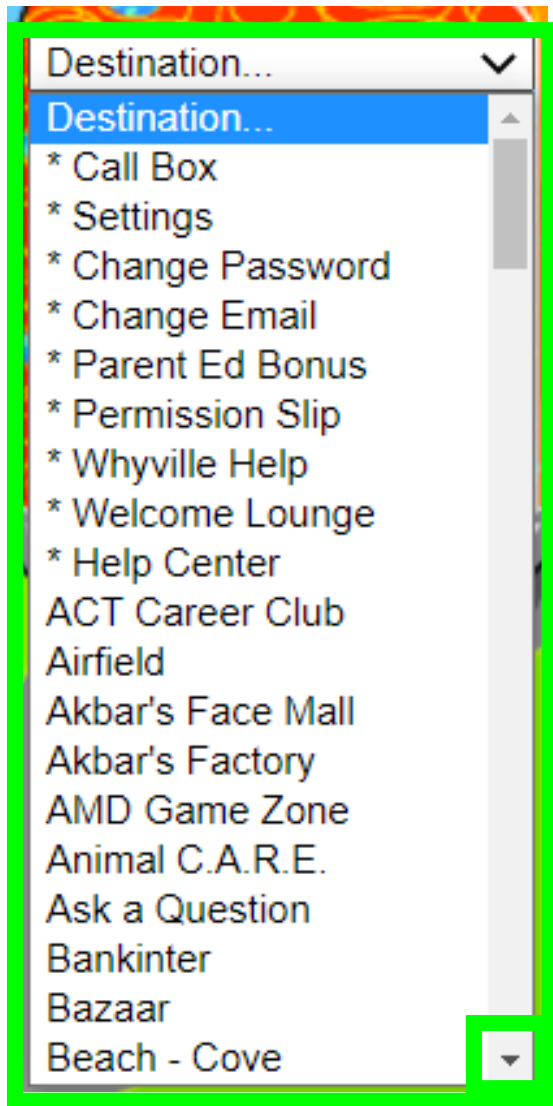
Shopping in Whyville

 Akbar's Face Mall Shop till you drop for Whyville's latest fashions!	 Trading Post Trade and buy items with other Whyvillians!	 Pearls Get a pile of pearls to use all Whyville's newest features.	 Grandma's Need free face parts? Grandma's got some for you.
 Bankinter Open a savings account and put your clams to work for you!	 Club Scion Buy your own Scion and accessories, too!	 Mimi's Dance Studio Boogie away: Buy a dance or create your own!	 Pet Store WhyPets -- own and care for your own furry friend.
 Furniture Farm Deck out your pad with furnishings from the Farm!	 Pharmacy Got the sniffles? The Pharmacy has what you need!	 Projectile Shoppe Stock up on stuff to throw at your friends!	 Gift Certificate Give the gift of Pearls to your favorite Whyvillian!
 Baron von Builder's Assemblage Buy plane parts to build planes and make big clams!	 Chat Candy Customize the colors of your chat bubble!	 Cafeteria Stop by for lunch or invite your friends to a banquet!	 Style Studio Give or get a makeover!
 Face Factory Design face parts with a face factory voucher.	 Brick Emporium Shop for all your needs for building your house!		

-- For more games to play, click on your Salary Ledger in the Top Tool Bar. --



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.

Whyville

LOG OUT

nela333

Cash: 150 clams

HOME

MAP

PLAY

CHAT

SHOP

Destination...

Whyville Events: Nov 29 - Dec 5

Today	Tue 30	Wed 1	Thu 2	Fri 3	Sat 4	Sun 5

TEACHER VERIFICATION PROGRESS

You indicated on your registration form that you are a teacher.

You have submitted your verification form, so the next step is for us to approve that.

The approval process takes a few days.

Once we have verified your teacher status, you can start registering your students as part of your Whyville class.

If you have any questions, please email [city-management](#).

BULLIED DEPRESSED STRESSED SAD

Whyville FAQs

- How to create your face
- How to chat
- Important safety rules
- How to earn clams
- Ymail a ymail helper for help
- Take the Whyville tour

TIP!!! Beware! Scammers in Whyville??

Sadly, just as in real life, there are trouble makers that try and steal things from people. What a drag! Don't let them ruin your fun! Scammers will pull every trick in the book. Be on your guard. A good sign of a scam is if anyone asks for your password or offers you theirs. Any time you see someone asking for or giving out passwords, 911 report them immediately!

- Refresh the page and get another tip.
- Read all of the tips.

TEACHER VERIFICATION PROGRESS

You indicated on your registration form that you are a teacher.

You have submitted your verification form, so the next step is for us to approve that.

The approval process takes a few days.

Once we have verified your teacher status, you can start registering your students as part of your Whyville class.

If you have any questions, please email [city-management](#).

Login Challenge

Click here to change how you see Whyville

Chat Colors

Mood: Name

Clams: 150

Pearls: 0

Salary: 0 clams/day

2

Lost? Click here to take the

LOST? MEE I UP WITH A GUIDE FOR A TOUR IN THE WELCOME LOUNGE

TELL YOUR FRIENDS ABOUT WHYVILLE!

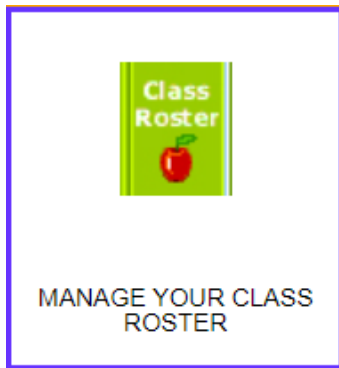
MANAGE YOUR CLASS ROSTER

CATCH A BREATHER OF FRESH AIR AT THE BEACH

From this menu of options

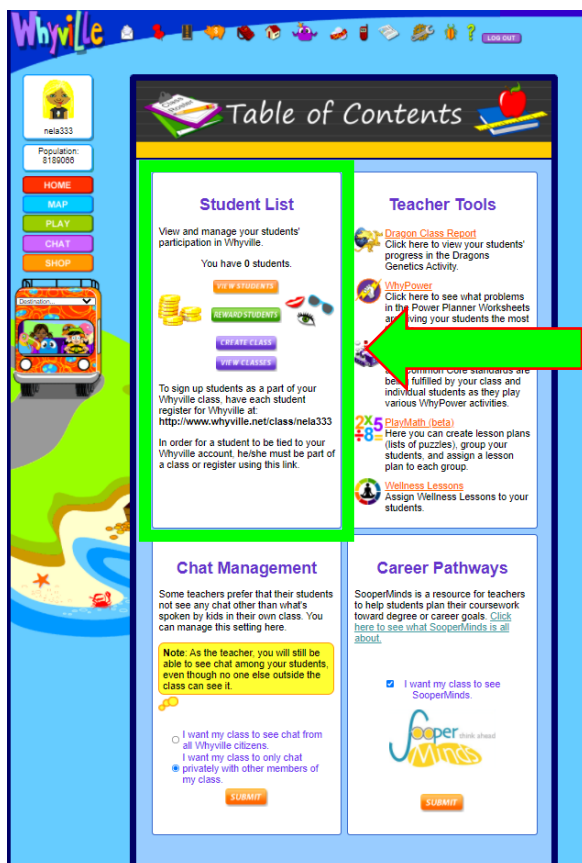
Step 2:

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.

Student List

View and manage your students' participation in Whyville.

You have **0** students.

To sign up students as a part of your Whyville class, have each student register for Whyville at:

<http://www.whyville.net/class/nela333>

In order for a student to be tied to your Whyville account, he/she must be part of a class or register using this link.

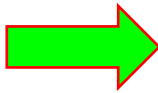
To sign up students as part of your Whyville class, have each student register for Whyville using your unique URL.

Chapter 3: Mars Mission Control

Step 1:

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

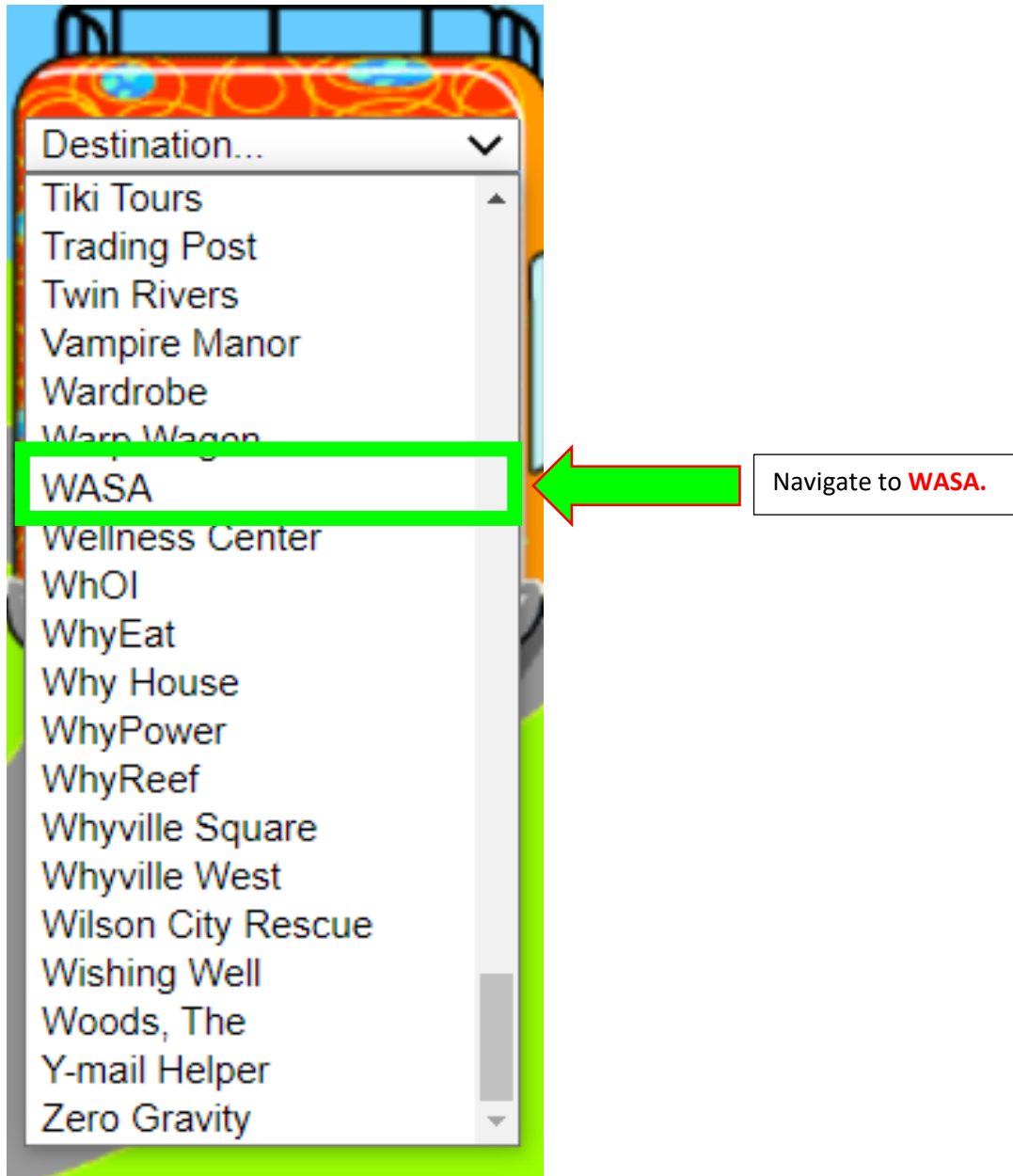
Click on the down arrow to access a menu of items.



The screenshot shows the Whyville Home page. On the left side, there is a user profile for 'nela333' with a 'Cash: 150 clams' indicator and buttons for HOME, MAP, PLAY, CHAT, and SHOP. A green box highlights the 'Destinations' menu, which is a drop-down menu. A green arrow points from the text 'Click on the down arrow to access a menu of items.' to this menu. The main content area is titled 'Whyville Events: Nov 29 - Dec 5' and includes a 'TEACHER VERIFICATION PROGRESS' section with text explaining the approval process. Below this is a 'BULLIED DEPRESSED STRESSED SAD' graphic and a 'Whyville FAQs' section with links like 'How to create your face' and 'How to chat'. A 'TIP!!! Beware! Scammers in Whyville???' section follows. On the right, there is a 'WHAT IS YOUR FOOD TELLING YOU?' banner with a character holding a book. At the bottom, there are several utility buttons like 'e-mail', 'Class Roster', and 'Catch a breath of fresh air at the beach'.

Step 2:

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



Step 3:

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



Step 4:

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

Whyville [Icons] [LOG OUT]

nela333
Cash: 230 clams

HOME
MAP
PLAY
CHAT
SHOP

Destination: [Dropdown]
[Bus icon]

Welcome to Mars Mission Control!

If you're interested in helping Maggie, the beagle, become the first terrestrial lifeform to walk the red soil of Mars, then you've come to the right place.

Maggie is a part of NASA's mission to explore Mars and the Solar System. To help her, you need to prepare by learning about some NASA missions and demonstrating understanding of the celestial bodies of our Solar System.

Start by playing the games below. You will earn knowledge as well as clams toward your Whyville salary!

- SPACE SWAP**
NASA engineers design unmanned spacecrafts so we can explore the Solar System and beyond safely. [Play Space Swap](#) to test and expand your knowledge of NASA missions and technologies!
- MARTIAN MEASURE**
It's fun to look at pictures and 3D models, but sometimes they don't give you a sense of scale. [Play Martian Measure](#) to make your own measurements and see how each spacecraft measures up!
- SOLAR SIZING**
How do our planets and the Sun measure up? Apply the techniques you've learned in Martian Measure to get a comparative sense of the size of these celestial bodies in [Solar Sizing](#)!
- SOLAR STORM**
When you are ready, help Maggie get to Mars by protecting her spacecraft from powerful Solar Storms that damage the spacecraft's electronic systems. [Play Solar Storm](#)!

Space Swap Martian Measure Solar Sizing Solar Storm

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.

SPACE SWAP
NASA engineers design unmanned spacecrafts so we can explore the Solar System and beyond safely. [Play Space Swap](#) to test and expand your knowledge of NASA missions and technologies!

MARTIAN MEASURE
It's fun to look at pictures and 3D models, but sometimes they don't give you a sense of scale. [Play Martian Measure](#) to make your own measurements and see how each spacecraft measures up!

SOLAR SIZING
How do our planets and the Sun measure up? Apply the techniques you've learned in Martian Measure to get a comparative sense of the size of these celestial bodies in [Solar Sizing](#)!

SOLAR STORM
When you are ready, help Maggie get to Mars by protecting her spacecraft from powerful Solar Storms that damage the spacecraft's electronic systems. [Play Solar Storm!](#)

Space Swap Martian Measure Solar Sizing Solar Storm

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 3: Solar Sizing

Lesson 2: Martian Measure

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://efaidnbmnnnibpcajpcgiclfindmkaj/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.