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EXPEDITION
ATLANTIS
A CALCULATED DEEP SEA ADVENTURE

iPad and PC User Guide

***A Robotic Quest to
Solve the Riddle of
Atlantis...***

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FAQ

Before using Expedition Atlantis

- ▶ **Are there special requirements for my PC?**
See "PC Installation/System Requirements" on page 6.

- ▶ **How do I Log into the game?**
See "log In" on page 7.

- ▶ **How will I learn to play the game?**
The game is intuitive, and teaches you as you play the game.

- ▶ **What do I do when I am done?**
See page 19, "the Ruins of Atlantis".

- ▶ **Where can I get support for this game?**
www.robotc.net/forums.

What is Expedition Atlantis

The Expedition Atlantis math game is designed to focus on learning mathematical programming strategies without having to worry about the nuances of programming. Expedition Atlantis rewards game players for using mathematical solutions as well as the measurement tools that are embedded into the game play.



I Solved Atlantis What's Next?

Apply what you learned in Expedition Atlantis in the Ruins of Atlantis programming challenge. Ruins is a programmable underwater world.

The level design of Ruins of Atlantis features a path that includes collectible objects and additional starting points, making it ideal for learning introductory programming concepts such as path planning and encoder based movements. (see page 19 for details)



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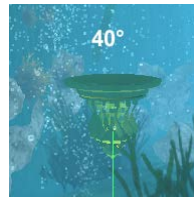


Learn How To Setup and Navigate the Game



Installation

Set up the game on your school's computers. p 6



Chapter 2

Turn a given number of degrees. p 12



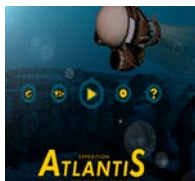
Log in

Log in to the game to store user progress. p 7



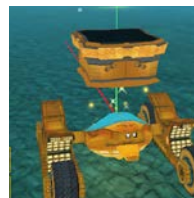
Garage

Outfit your robot with upgrades. p 13



Settings

Learn how to setup the game to optimize performance. p 8



Chapter 3

Turn and move to retrieve supplies and earn upgrades. p 14



Customize

Setup difficulty levels for your students. p 9



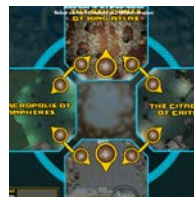
Chapter 4

Solve the riddle of Atlantis! p 15



Select Level

Start the game and select levels when you return. p 10



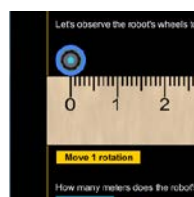
Quick Travel

Learn to unlock rooms and travel quickly. p 16



Chapter 1

Move a given distance. p 11



Movement Simulator

Learn about straight and turn movements. p 17 - 18

PC Installation (iPads use the app store)

1. You will need Administrator Level Access to the computer to install Expedition Atlantis.
2. Use your Internet browser to download the latest version of Expedition Atlantis at: <http://robotvirtualworlds.com/atlantis/>
3. When the file download is complete, double-click on it to run the Expedition Atlantis installer.
4. Follow along with the on-screen prompts, pressing Next and Continue when needed.
5. When the installer is complete, a shortcut to your Start Menu and Desktop will be added for Expedition Atlantis. Double-click the icon to launch the game.

System Requirements

- PC Compatible OS: Windows XP, Windows Vista, Windows 7, or Windows 8
- Processor: Intel Core 2 Duo processor family or better, AMD Athlon X2 processor family or better
- Memory: 2 GB RAM
- Graphics: NVIDIA® GeForce® 8800GTS or better, ATI Radeon™ HD 3850 or better
- DirectX®: DirectX® 9.0c and DirectX® 10
- Hard Drive: 500 MB free hard drive space
- Sound: Standard audio device

Optimizing Your Computer's Performance



Log In



This is the first screen that you see when you open the game. How you log in determines how your progress is saved. Be sure to log In each time you play the game to save your progress.

1 Log into CS2N

When you log in using a CS2N account, your progress is tracked and stored via the CS2N network. This lets you continue to work on the game, even on a different computer.

Create a CS2N account at <http://www.cs2n.org/signup> (users will need an email address)

2 Log in locally

A local log in allows you to save your progress on a local machine. You will need to use the same computer every day to take advantage of this feature.

3 Log in as guest

Within the LOCAL button, there is an option to log in as guest. Logging in as a guest allows you to preview and show the game to your friends, but once the game is closed no progress will be saved. With this option all progress will be lost if the application is closed, even accidentally.

4 Log in

When a user selects to log in the interface moves to the top of the screen and the keyboard appears.

Settings



After logging in, you have several options to configure the game

1 Supplementary Media

Replay the introductory videos



2 Badges

Shows the badges that the player has collected.

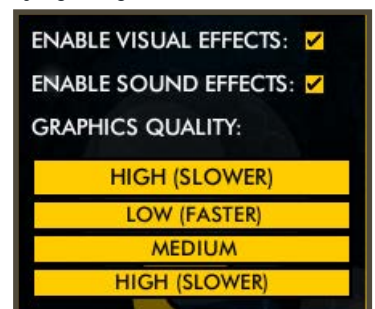


3 Play

Begins playing the game.

4 Settings

Allows you to adjust the game based on the speed of your computer processor.



5 Links to Additional Resources



6 Log out

Returns the user to the login screen allowing another student to log in.

Customize Difficulty Level



The only reason that you would change the problem type is if you were a teacher. Generally this is not relevant to players.

1 Customize the Problem Types in Chapter 1

Select the number of Basic, Intermediate, and Challenge problems found in Chapter 1

2 Customize the Problem Types in Chapter 2

Select the number of Basic, Intermediate, and Challenge problems found in Chapter 2

3 Customize the Problem Types in Chapter 3

Modify the types of problem sets found in Chapter 3. The current level is "ALL BASIC PROBLEMS".

4 Customize the Reference Values Found in the Game

This opens the displayed box, allowing teachers to differentiate instruction on an individual basis. The default level is INTERMEDIATE VALUES.

Select Level



1 Chapter 1

Players program their robot to move forward precisely, from rock to rock, so ocean storms don't blow them off a cliff.

2 Chapter 2

Players program their robot to turn to align with the floating platforms enabling them to jump across an ocean trench on their way to Atlantis.

3 Chapter 3

Players program their robot to turn and move, catching valuable upgrades before venturing into Atlantis.

4 Chapter 4

Players collect jewels in Atlantis, winning the game when they reactivate the geothermal energy generator.

5 Moving Forward Training

Players learn how to calculate distance traveled.

6 Turning Training

Players learn about turning and degrees here.

7 Garage

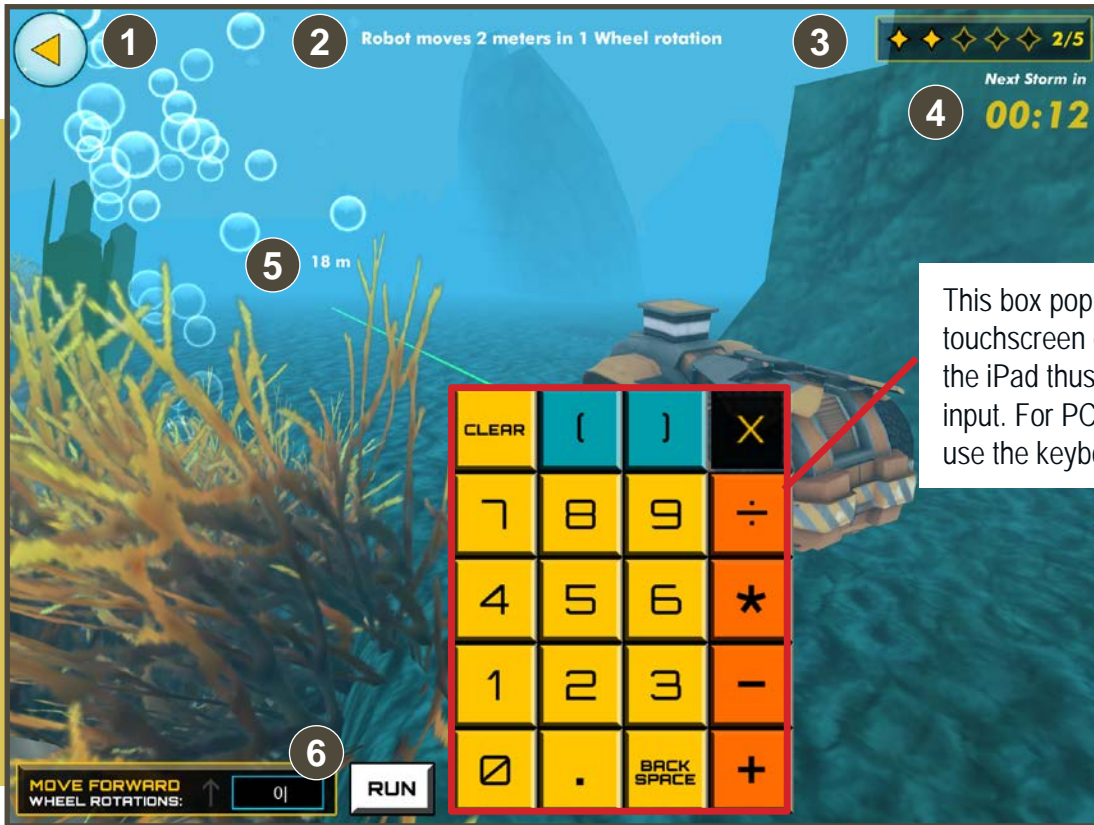
Available after completing Chapters 1 and 2. Players equip their robot with upgrades earned during Chapter 3.

8 Difficulty level

Adjust the difficulty of the calculations encountered during gameplay.

9 Help Screen

Chapter 1: Distance



1 Back button

Returns players to the home screen

2 Reference ratio

Gives players the distance the robot travels per wheel revolution, in math terms this is called the unit rate – the distance per 1 rotation.

3 Skill-meter

Tracks a player's progress. Once all 5 icons are filled, the player moves to chapter 2.

4 Storm timer

Indicates when the next underwater storm will be. Players should enter their answer when there is enough time to make it to the next rock. If players give the wrong answer, their robot will be swept away by the storm.

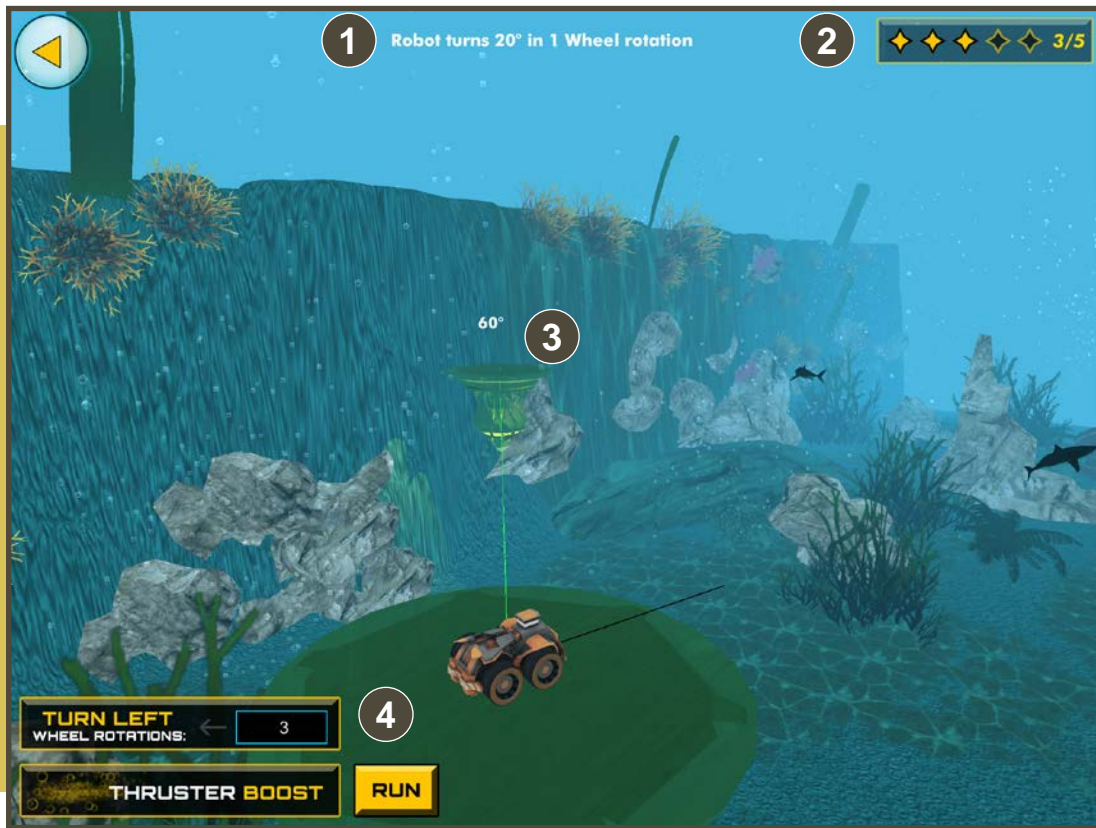
5 Goal

Distance in meters the robot needs to travel in order to avoid the storm current. Players will use this information plus the reference ratio to determine how many wheel revolutions the robot needs to travel. In the example above the distance is 16 meters and the reference ratio is 2 meters per wheel revolution; the robot needs to travel $16/2$ or 8 wheel revolutions.

6 Answer box

Players enter the number of wheel rotations that the robot should move to reach the goal. Decimals and fractions are accepted. The system rounds to 2 decimals. Algebraic expressions are also accepted. In the example above the player could type $16/2$ into the answer box.

Chapter 2: Turning



1 Reference ratio

Gives players an initial ratio of degrees to wheel rotations, which allows the player to scale that ratio to different distances. In this example, the robot turns 20 degrees in one wheel revolution.

2 Skill-meter

Tracks a player's progress. Once all 5 icons are filled, the player moves to chapter 3.

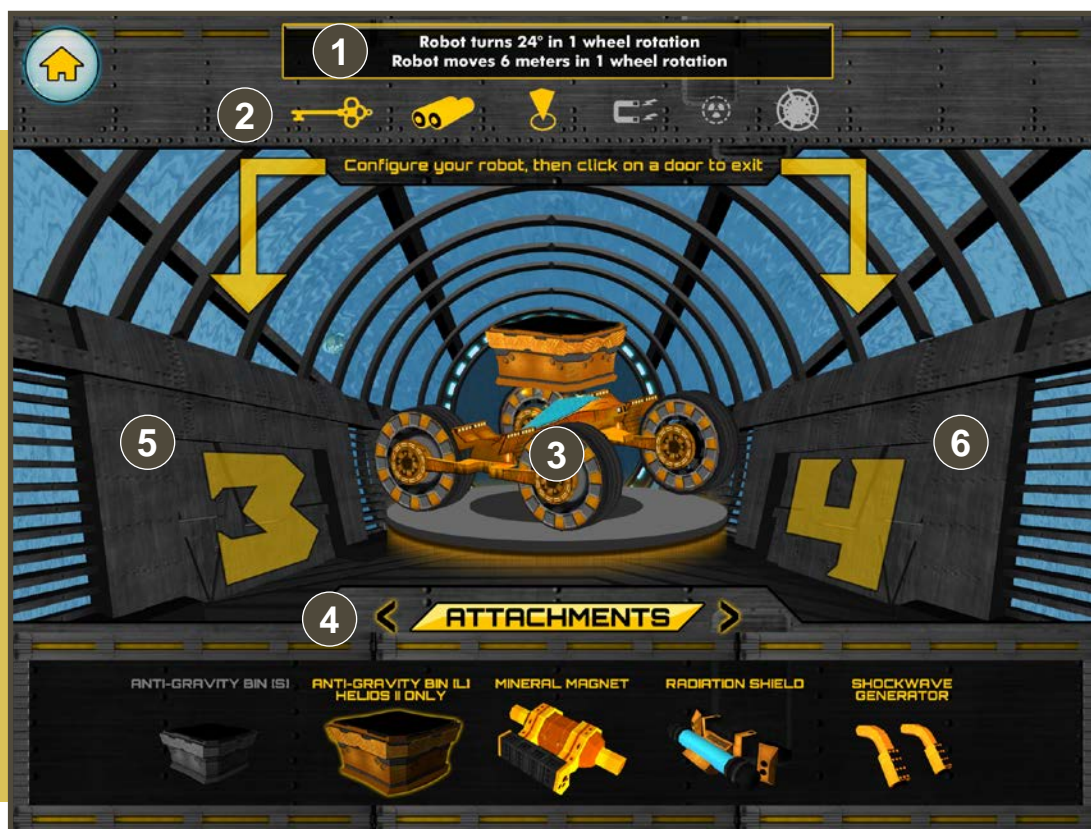
3 Goal

Distance in degrees the robot needs to turn in order to align with the target, mesa-like island. In this example, the robot needs to turn 60 degrees and it turns 20 degrees with each wheel revolution. Answer: $60/20$ or 3 wheel rotations.

4 Answer box

Players enter the number of wheel rotations that the robot should move to align exactly with the goal. Once the correct amount is entered, the robot leaps to the target. This box also accepts calculations like $60/20$.

Chapter 3: The Robot Garage



The Robot Garage allows for robot customization.

1 Reference ratio

Gives players an initial ratio of degrees to wheel rotations for the robot that they have assembled.

2 Parts List

In Chapter 3 players will be challenged to go and catch parts that are being dropped by the mother ship. They will need these parts to collect the jewels in Level 4.

3 The Robot Staging Area

This area is where the player can see the custom robot that they design. As they add parts, colors, battery level, etc. they will be displayed on their robot here.

4 The Robot Configurator

Initially there will only be a couple of parts that can be modified at the beginning of chapter 3. Once the student collects additional parts the parts will light up and they will be able to add them to their robot.

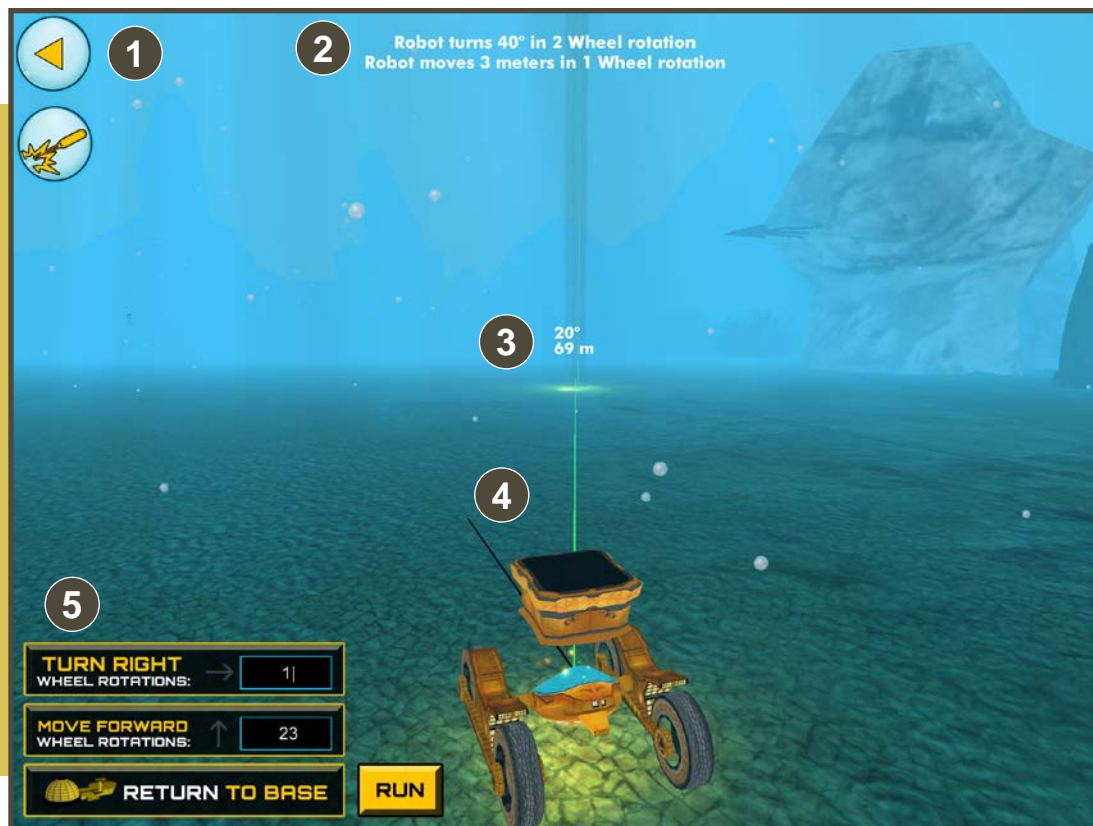
5 The Door to Level 3

This door takes players to outside Atlantis where they are required to catch parts from the Mother Ship.

6 The Door to Level 4

This door remains locked until the player catches the key to the door.

Chapter 3: Turning and Straight



In Chapter 3, you combine the moving and turning skills you learned in Chapters 1 and 2. You catch parts that are dropped from the Mother Ship. You will need these parts to solve the Chapter 4 missions.

1 Home / Robot Configurator

The top button takes the player back. The second button enables the player to add parts that they've caught to their robot.

2 Reference ratios

Players are given two reference ratios since they are now required to do two things: make their robot turn, and also move forward. This robot has a bigger wheel size, so both reference values have changed. For Explorer and Admiral levels, the reference ratios will require multiple calculations.

3 Goal/Upgrades

Each goal is the location where a new upgrade from Mother Ship will be dropped. Each upgrade provides tools that will be used to solve Chapter 4 when players reach Atlantis.

4 Robot

Players use a new robot with a catcher, increased wheel size and wheel separation distance. This affects the math for moving straight and for turning (see reference ratios)

5 Answer boxes

You enter 2 values for each run. The direction of turning (left/right) is automatically handled and does not need to be manually set. The third "drop item at garage" is not a button; it only prepares students for future robot programming tasks where multiple steps are needed.

Chapter 4: Solving Atlantis



In Chapter 4, you have reached Atlantis and need to reactivate the core generator by collecting five jewels in this level.

1 The Measurement Tool

Players will be setting their own target locations in Chapter 4. Simply drag the measurement tool to the location that you want to travel to.

2 Distance Display

Once the measurement tool is moved it will display angles and distances relative to the robot.

3 Fuel Level

Green bars on the battery indicates the amount of fuel left in the robot. This battery is completely charged.

4 The Radiation Shield

Required to enter level 4.

5 Quick Travel

Once you have unlocked one of the four rooms in Atlantis, the quick travel button allows you to quickly move from one place to another.

6 The Answer Box

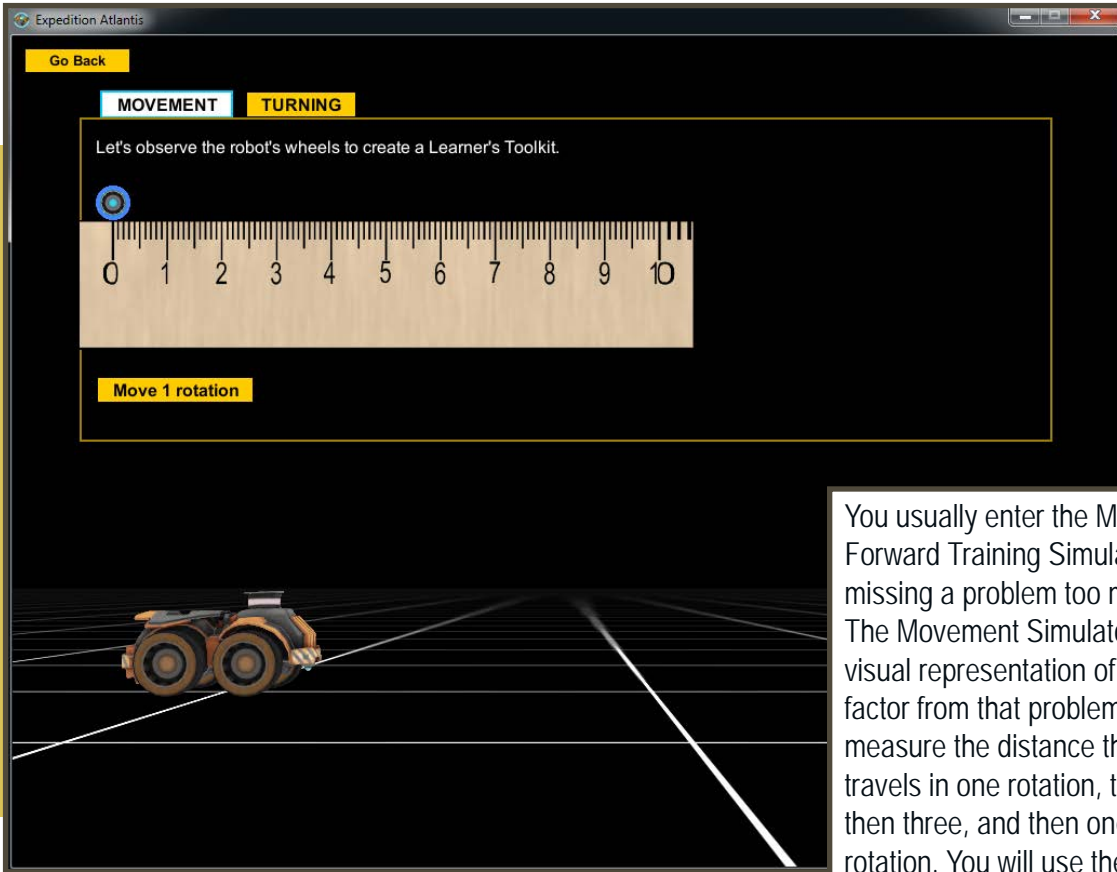
Works the same way in Atlantis as it did in Chapter 3.

Quick Travel Tool

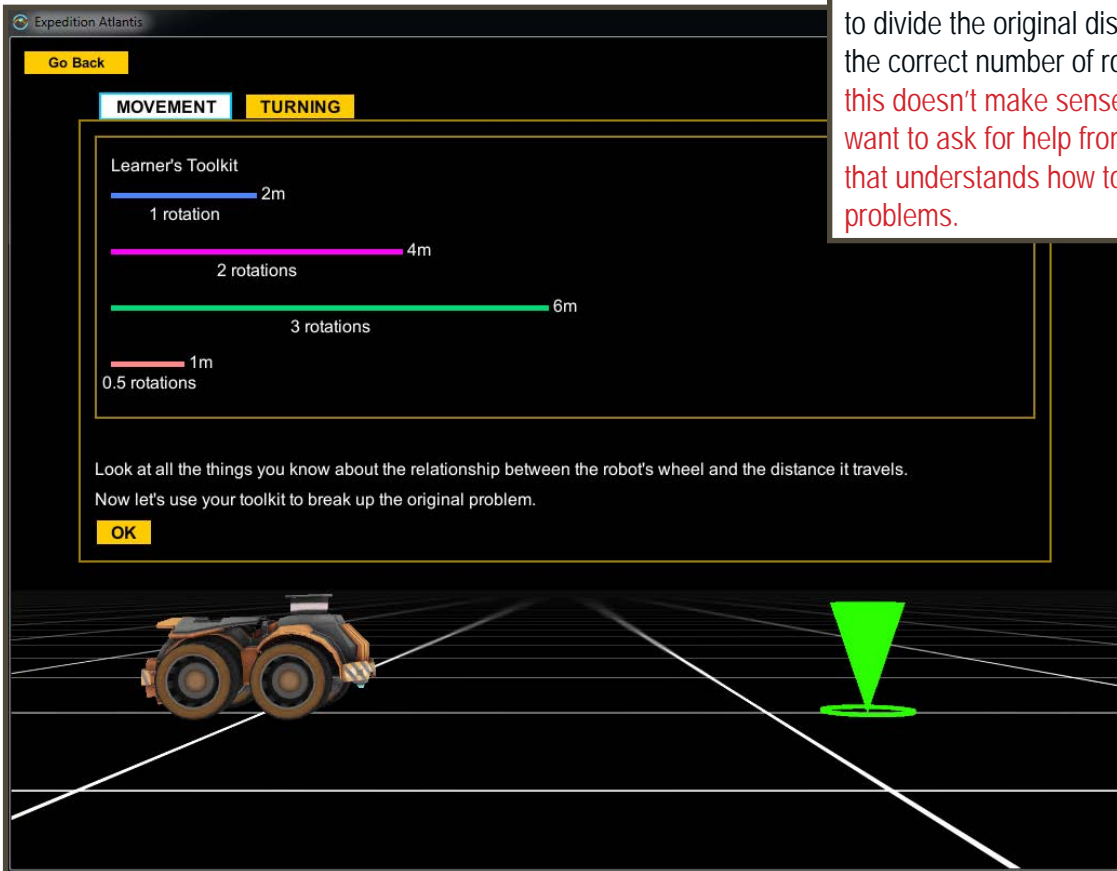


As rooms are unlocked in Level Four you will be able to quickly move from room to room by selecting **5**.

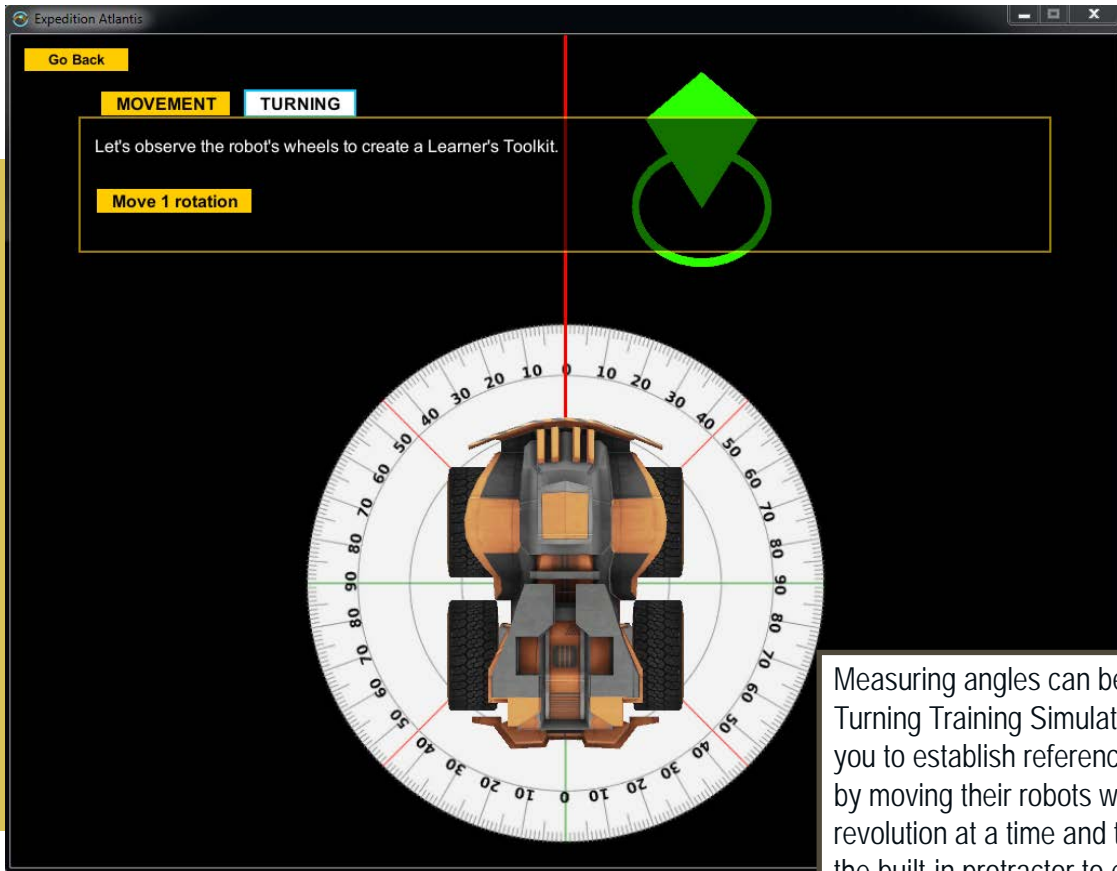
Moving Forward Training



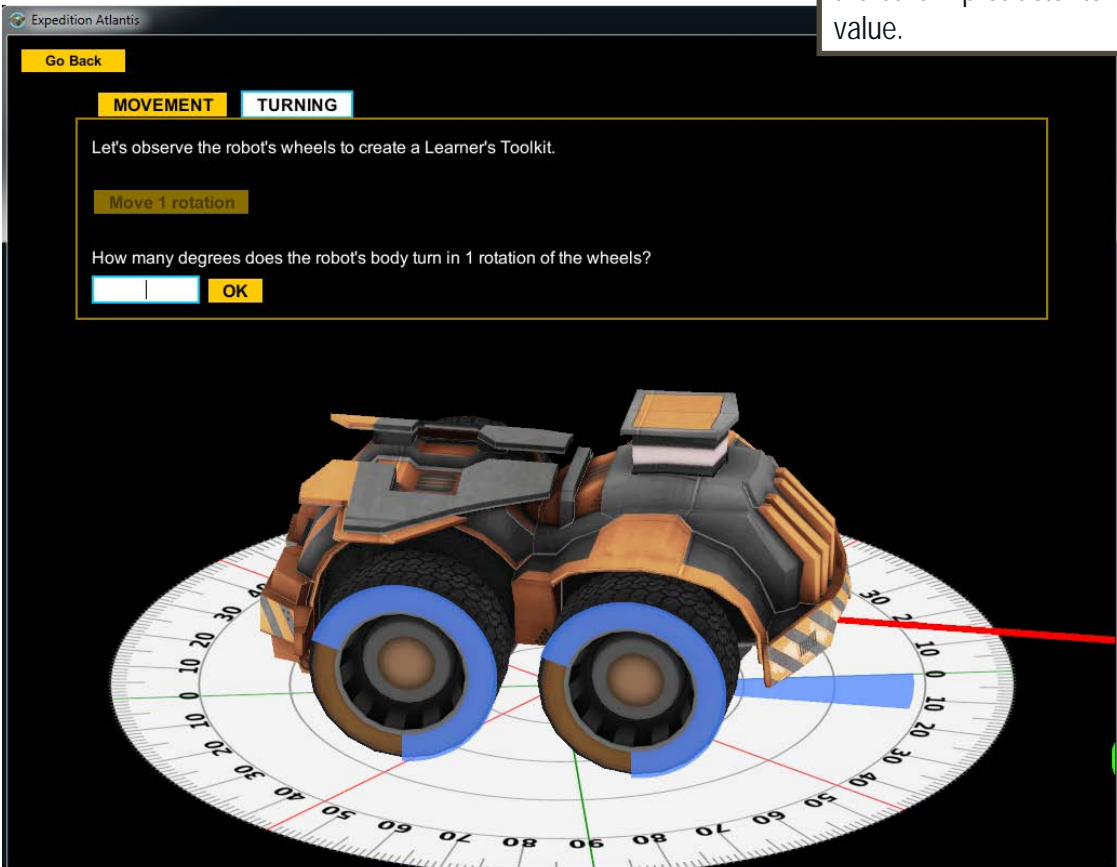
You usually enter the Moving Forward Training Simulator after missing a problem too many times. The Movement Simulator creates a visual representation of the scaling factor from that problem. First, you measure the distance the robot travels in one rotation, then two, then three, and then one half a rotation. You will use these values to divide the original distance into the correct number of rotations. *If this doesn't make sense, you might want to ask for help from someone that understands how to do the problems.*



Turning Training

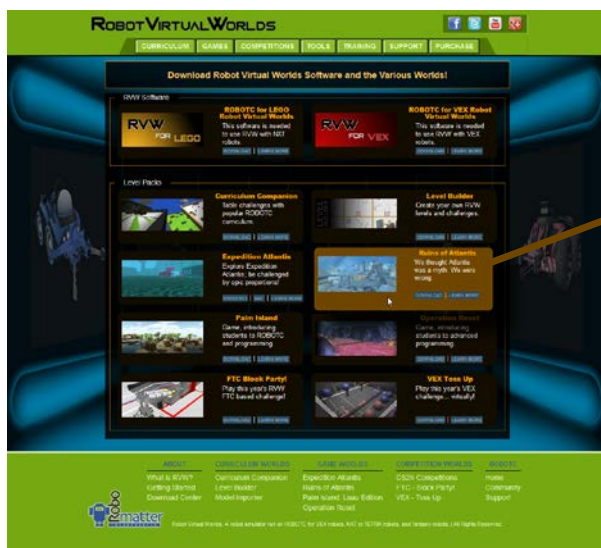
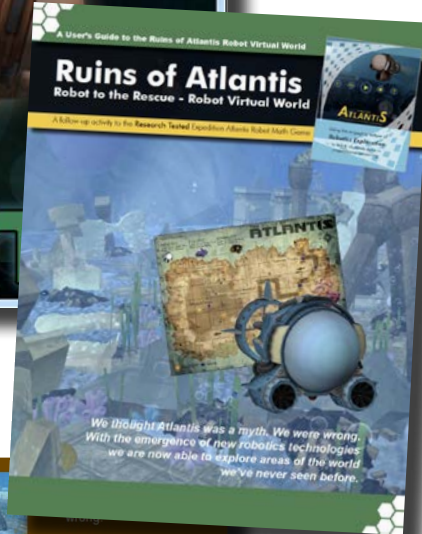
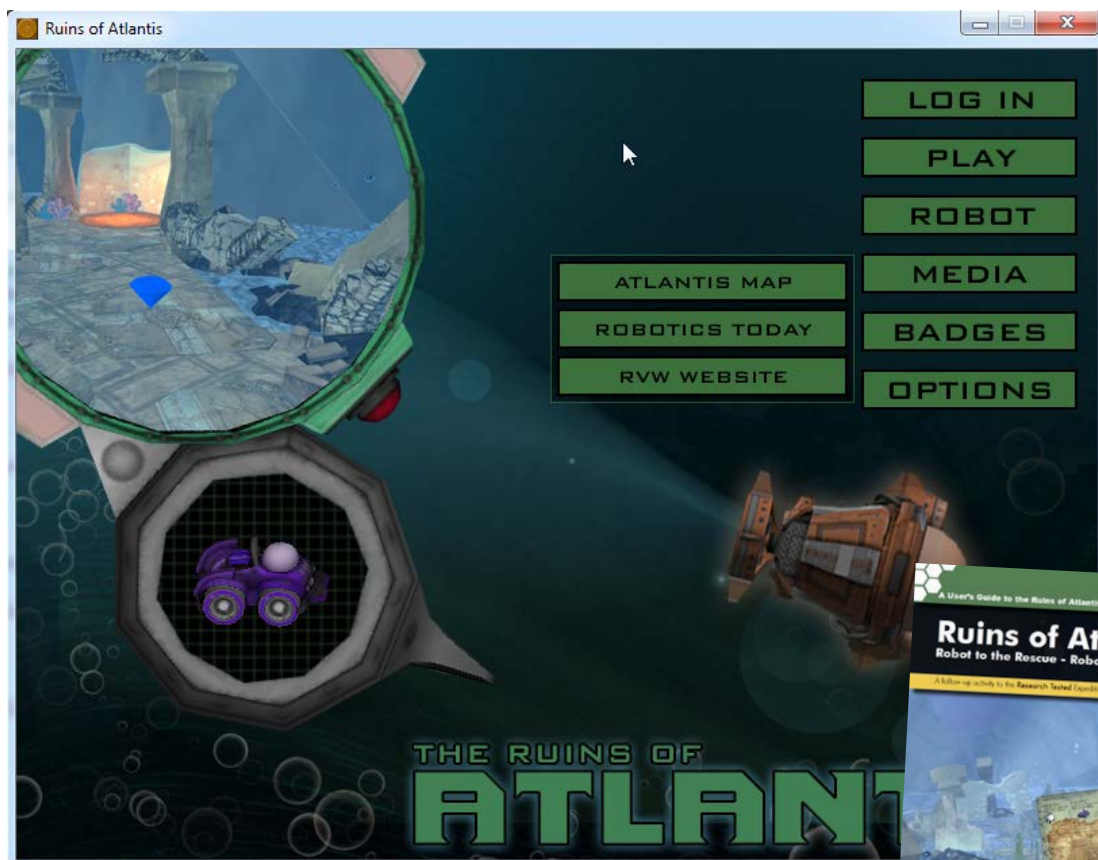


Measuring angles can be tricky. The Turning Training Simulator helps you to establish reference values by moving their robots wheel one revolution at a time and then using the built-in protractor to establish a value.



The Ruins of Atlantis Programming Game

The Ruins of Atlantis programming game is part of a suite of programmable Robot Virtual Worlds (RVW). The RVWs are programmable using a variety of programming languages. You can find training materials at www.robotvirtualworlds.com.



Download the Ruins of Atlantis game at: www.robotvirtualworlds.com/download