

HABWORLDS

Release Notes: HabWorlds (December 2018)

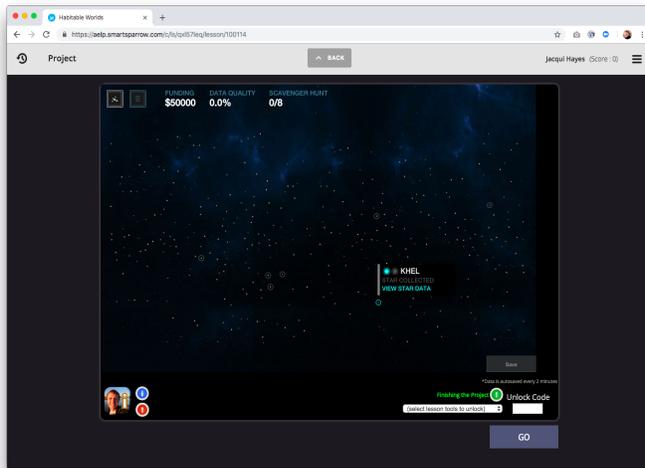
The team behind HabWorlds – Arizona State University’s Prof. Ariel Anbar and his team at the Center for Education through eXploration (ETX) – have been working hard for nearly a year to improve the course.

This work will result in a series of releases throughout 2019, with a few major goals:

1. To make it significantly easier to use by rebuilding all simulations in HTML5, removing any Flash technology.
2. To refresh and update the visual design and user interface of lessons and interactive simulations.
3. To redesign, modify, and improve how students are learning.

We’re excited to release the first part of this work for deployments beginning January 2019. Below is a list of what you can expect from the first release. You can read more about what is happening and why by [checking out Prof. Ariel Anbar’s blog post](#).

Major Update: The Star Project



No more Flash!

The Star Project pulls together everything a student has learned in the course by asking them to apply that knowledge to find a Habitable Planet within a starfield.

Good news – it is no longer in Flash! This will make it significantly easier to use with your students.

We are also looking into making it easier to only use sections of the Star Project. If this is something you would like to do, please let us know.

Student Rubric

As well as the search for a habitable planet, there are three questions with long-form written answers.

Students are asked to describe the methodology they used to find a Habitable World, to write a press release and to construct a message to send to the world they found.

From now on, students will see a rubric as they write the assignment (see screenshot of where the Rubric appears).

Manual Grading

These answers can now also be easily graded by you, though the Manual Grading section of the Smart Sparrow Workspace. Student will see the grade you assign from within the Leanspace.

You can [read more about how to do this in our Instructors Guide \(bottom of the page\)](#).

Describe how you worked on the project. Your description must include 1) who you worked with and resources that you accessed, 2) a description of how you tackled the various parts of the project, and 3) an explanation of how you would improve your methodology in the future. See the Rubric for more detailed information.

ASSIGNMENT		RUBRIC			
TITLE	BEGINNING (0)	DEVELOPING (5)	ACCOMPLISHED (7)	EXEMPLARY (10)	PTS
Collaborations, Resources, and Tools	Contains little to no information on partners, resources, and tools used during the project. Example: I finished the project.	Contains information on partners, resources, and tools, but may be missing significant details. Example: I worked by myself using a calculator.	Explains in some detail partners, resources, and tools, but is incomplete. Example: I worked with Kalen, Krit, and Areyia using calculators and spreadsheets ...	Explains in detail partners involved with the work (or if you worked alone), resources accessed and utilized while completing the project, and tools used to organize and complete work. Example: I worked with Kalen, Krit, and Areyia in the library, using Google to look	1x

New Version of Unit 1 Introduction

Comparison of previous and new unit structure

Previous Lessons	New Lessons	Key highlights
Science Literacy		Removed lesson. Content is found throughout other lessons in this unit.
Intro 1: Preconceptions	Intro 1: Preconceptions	Small modifications
Intro 2: Mindscapes	Intro 2: Mindscapes	Small modifications
Intro 5: Scientific Process	Intro 3: Science	Revised and renamed. Moved from the 7th lesson to be the 3rd in the sequence.
--	Intro 4: Tools of the Trade	New Lesson
Intro 3: Space	Intro 5: Space	Small modifications
Intro 4: Time	Intro 6: Time	Small modifications New Timeline Sim
--	Intro 7: Matter and Energy	New Lesson
Intro 6: Drake Conjecture	Intro 8: Astrobiology	Revised and renamed. New Timeline Sim New Drake Equation Sim

New Lesson: Matter and Energy

Intro 7: Matter and Energy ★ Score: 0 ☰ Apps 👤 Jacqui Hayes

Isotopes

If you recall, the nucleus of an atom contains both protons and neutrons. An element is defined by its **atomic number**, which is the number of protons in the atom's nucleus. Changing the number of protons will change the element because protons affect the chemical properties of the atom.

Neutrons, however, have no impact on the chemical properties of an atom so even if the number of neutrons varies, the element remains the same. Atoms of the same element having the same number of protons but different numbers of neutrons are known as **isotopes**.

🔍 Periodic Table

Assuming you can see all of the protons in each nucleus, identify which element these atoms are isotopes of.



⏪ ⏩ 🕒 HISTORY VERIFY

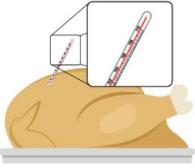
There is a new lesson, with the following objectives:

- Describe the parts of an atom including their charges and locations.
- Distinguish between atoms, elements, ions, isotopes, and molecules.
- Explain that light is a form of energy that can be depicted as a wave or photon.

New Lesson: Tools of the Trade

Intro 4: Tools of the Trade ★ Score: 0 ☰ Apps 👤 Jacqui Hayes

Observation: Chicken appears fully cooked.



The temperature of the chicken is measured with an oral thermometer that only registers a maximum temperature of 110° F.

Evaluate this scenario. If there is an error with the observation, determine the source of the error.

How would you classify this observation?

Faulty observation Good observation

⏪ ⏩ 🕒 HISTORY VERIFY

There is a new lesson, with the following objectives:

- Analyze observation tools and their usage to distinguish between faulty observations and good observations.
- Utilize appropriate tools to aid in mathematical calculations.
- Evaluate whether or not calculated values are plausible

New Simulations

Two Simulations (the Timeline Simulation and the Drake Equation) have been re-designed and rebuilt in HTML5, improving the student experience.

The screenshot shows the 'Perceptions of Time' simulation interface. At the top, it says 'Intro 6: Time' and 'Score: 0'. The main title is 'Perceptions of Time'. Below the title, it asks: 'Today is located at time 0. When do you think Earth formed? When do you think it will die?'. A blue box says 'Place the markers at the times you think these events occurred.' Below this is a 'Description' panel for 'Formation of Earth' with an image of a protoplanet and text: 'Small pieces of solid material in the solar nebula began to collide, eventually creating planetesimals with a large enough gravitational field to affect the motion of nearby planetesimals. The largest planetesimals continued to attract smaller ones, eventually...'. Below the description is a timeline from -6 Ga to 6 Ga with a 'Reset Zoom' button. At the bottom, there are navigation arrows, a 'HISTORY' button, and a 'VERIFY' button.

The screenshot shows the 'Exploring the Parameter Space' simulation interface. At the top, it says 'Intro 8: Astrobiology' and 'Score: 0'. The main title is 'Exploring the Parameter Space'. Below the title, it says: 'You can get the same results many different ways because we don't know these terms yet. Let's explore what that means.' Below this is a 'Drake Equation' panel with 'Object Settings' and a list of parameters: R^* = 18, f_p = 0.90, n_e = 3.40, f_i = 0.04, f_c = 0.02, f_l = 0.41, and L = 2,130,711. To the right is a star field visualization. Below the visualization, it says: 'Because there are so many unknowns, you can make the same prediction using many assumptions (and generate many different models). This may make it seem like the equation is useless, but let's check out what happens when we compare models.' At the bottom, there are navigation arrows, a 'HISTORY' button, and a 'CONTINUE' button.

Thank you!

Every semester we receive suggestions on how we could improve our questions, text, images, feedback, etc. This release contains a small flock of fixes suggested by you. Please let us know when you see something that you think could be improved. Contact us at:

team@inspark.education