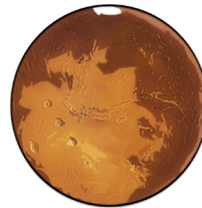


# Artemis

- new Moon to Mars mission
- plans to land the first woman and first person of color on the Moon
- will create the **first long-term presence on the Moon**
- What is learned from the Moon missions will provide information for missions to send astronauts to Mars.



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# Space Exploration Interactive Lesson

**PRINT and DIGITAL**



# Compatible with Google Slides and PPT

A key is also  
included!

## International Space Station

It's also a **science lab** where  
study many things such as  
to people as they live



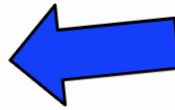
Drag the circle to the correct response.

The Voyager probes flew  
by or explored all except:

- Saturn and its moons
- Mercury
- Uranus
- interstellar space



Drag the arrow to the correct answer.



The WMAP studies the properties of our solar system alone.

True

Drag the circle to the correct response.

For The Spirit and Opportunity rovers discovered that Mars once had:

- life
- volcanoes
- liquid water
- rings



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# Drag and Drop



In the text boxes below, in the 1<sup>st</sup> Column, type in what you already **KNOW** about space exploration. In the 2<sup>nd</sup> column, type in what you **WANT** to learn about space exploration. The last column will be completed at the end of the lesson (what you've learned).

Last Slide

<b>K</b>	<b>W</b>	<b>L</b>
• Type here.	• Type here.	

**Which influential space mission is responsible for the following?:**

**first to travel through  
asteroid belt**

Type here.

-----

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**Type in the  
Text Box**



Drag the lines to match the spacecraft with its definition.

telescopes →

rovers →

probes →

vehicles that travel on the ground of an astronomical object

instruments that orbit another object in outer space

unmanned device that explores space and collects scientific information

sat

lan

# Hubble Space Telescope

- launched in 1990
- **radically changed science**
- too many observations to count!
- observes at ultraviolet, visual, and near-infrared wavelengths

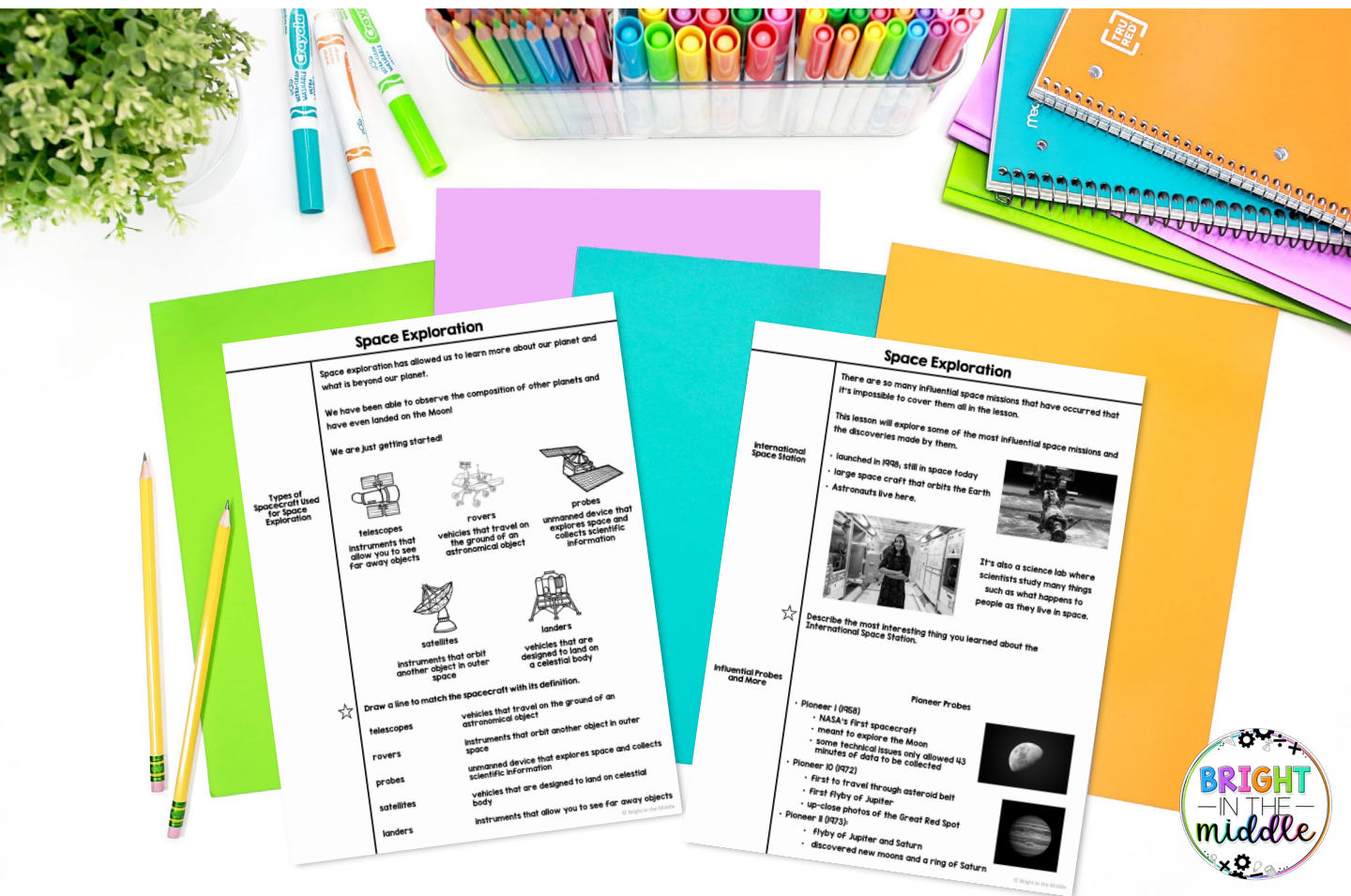


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# and more!



# A paper version is also included with interactive activities embedded.








### Space Exploration

Space exploration has allowed us to learn more about our planet and what is beyond our planet.

We have been able to observe the composition of other planets and have even landed on the Moon!

We are just getting started!

 telescopes Instruments that allow you to see far away objects	 rovers vehicles that travel on the ground of an astronomical object	 probes unmanned device that explores space and collects scientific information
 satellites instruments that orbit another object in outer space	 landers vehicles that are designed to land on a celestial body	

★ Draw a line to match the spacecraft with its definition.

telescopes	vehicles that travel on the ground of an astronomical object
rovers	instruments that orbit another object in outer space
probes	unmanned device that explores space and collects scientific information
satellites	vehicles that are designed to land on celestial body
landers	instruments that allow you to see far away objects


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### Space Exploration

There are so many influential space missions that have occurred that it's impossible to cover them all in the lesson.

This lesson will explore some of the most influential space missions and the discoveries made by them.

- launched in 1968, still in space today
- large space craft that orbits the Earth
- Astronauts live here.



It's also a science lab where scientists study many things such as what happens to people as they live in space.

★ Describe the most interesting thing you learned about the International Space Station.

#### Influential Probes and More

Pioneer Probes

- Pioneer 1 (1958)
  - NASA's first spacecraft meant to explore the Moon
  - some technical issues only allowed 43 minutes of data to be collected
- Pioneer 10 (1972)
  - first to travel through asteroid belt
  - first flyby of Jupiter
  - up-close photos of the Great Red Spot
- Pioneer 11 (1973)
  - flyby of Jupiter and Saturn
  - discovered new moons and a ring of Saturn

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# Guided Cornell notes are included as well!



**Space Exploration**

**WMAP**  
Wilkinson Microwave Anisotropy Probe


- launched in 2001
- studies the properties of the .....
- mapped the fluctuation in the Cosmic Microwave Background Radiation (oldest light in the universe)
- sparked theories about the nature and ..... of the universe
- gives a much more precise age of the universe: 13.7 billion years old

☆ Circle the correct answer.


The WMAP studies the properties of our solar system alone. True  
False

**Hubble Space Telescope**

- launched in 1990
- radically changed .....
- too many observations to count!
- observes at ultraviolet, visual, and near-infrared wavelengths



- revealed so many new stars, planets, ..... and galaxies
- views of storms on other planets and stars bursting to life and dying
- showed that the universe expansion is speeding up
- showed the presence of dark matter



☆ Describe the most interesting thing you learned about the Hubble Space Telescope.

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# Ways to Use Digital Interactive Lessons

Science digital interactive lessons are a great way to teach or review science content with your students for many reasons.

They are fun. They are engaging. Another reason, which I think is the most important, is that they help decrease the cognitive load. The way that digital interactive lessons are set up is first, a little bit of content, and then practice with that content, and repeat the process.

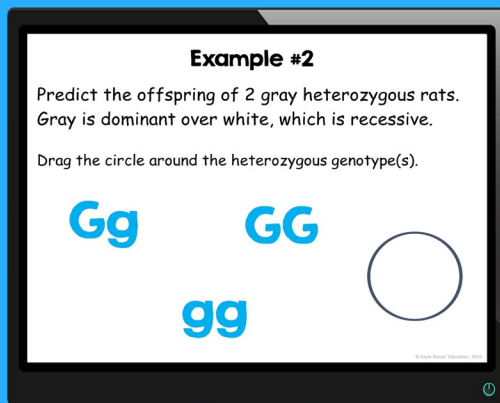
Students can digest small chunks of information a little at a time, apply that information, and then learn more! This will help keep their attention.

So, now, what are some ways that you can use them in your middle school science classroom?



# Individual Learning

One way that interactive lessons can be used in the classroom is just for individual learning. These are digital lessons, so students can pull up the lesson on their computer, either via Google Classroom, Microsoft Teams, PowerPoint, or whatever you use in your classroom.



Students read through the lessons themselves and **work through the practice** at their own pace.

The benefits of doing this are that students can work at their own pace and you, as the teacher, can walk around the classroom as they are learning to answer any questions that they have. In addition, you can see what that particular student is learning. As you walk around the room and view their work, you can use it as a formative assessment to see if they are understanding the material.

You can also bump it up a notch. Since students will be working using the computer, you can embed related YouTube videos in the lesson for extra enrichment!

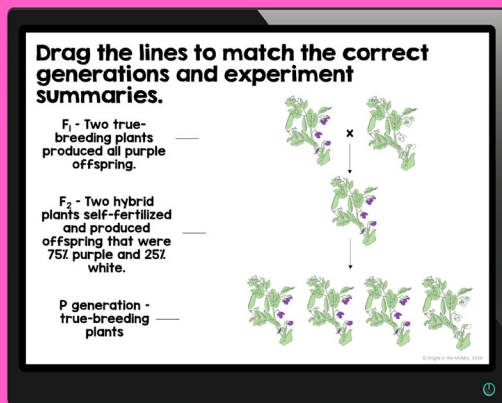
**Digital Science**  
**INTERACTIVE**  
**Lessons**  
*for*

**INDIVIDUAL LEARNING**



# Distance Learning

Digital interactive science lessons are a great tool to use for individual learning at a distance for the middle school science classroom.



Students can read through the material, and after digesting chunks at a time, they can apply the information with embedded practice slides.

After completing the lessons, students can submit their work to their teacher.

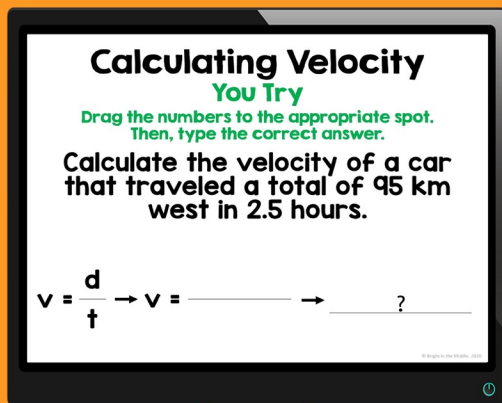
**Digital Science**  
**INTERACTIVE**  
**Lessons**  
*for*

**DISTANCE LEARNING**



# Small Groups/ Partners

This works similarly to having students working as individuals except that students have the opportunity to work with one another. I think that this an awesome approach to differentiated learning in the classroom.



In small groups, or in partners, students are able to read the lesson together, discuss each practice slide, and apply the information together.

I prefer this method in many ways because I believe in the power of cooperative learning. As a teacher, you still have the opportunity to walk around and help the individual students as needed, but students also have each other for support.

**Digital Science**  
**INTERACTIVE**  
**Lessons**  
*for*

**SMALL GROUPS/  
PARTNERS**



# Direct Instruction

As mentioned, digital interactive lessons are set up as a lesson with embedded practice to help decrease the cognitive load. If teachers choose to, they can pull up the lesson and teach it to their students and still take pieces of content and digest them bit by bit.



For example, when teaching about **pedigree charts**, the teacher can first discuss what a square and a circle represent in a pedigree chart.

**Digital Science**  
**INTERACTIVE**  
**Lessons**  
*for*

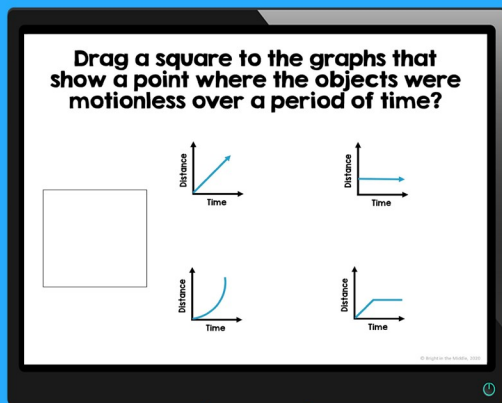
**DIRECT INSTRUCTION**

After students digest this material, the teacher can ask students to discuss how they will remember this information and then apply the information in practice.



# Science Centers

Digital interactive science lessons can be used in one of two ways for science centers. First, science centers on a particular topic. For example, say you are teaching distance-time graphs, and you are ready for students to complete science centers on this topic. You can have a center for a [digital interactive lesson](#) (make groups in Google Classroom, or another platform), [task cards](#), [story match](#), and a reading passage.



**Digital Science**  
**INTERACTIVE**  
**Lessons**  
*for*

**SCIENCE CENTERS**

Another way that you can use interactive science lessons for science centers is only using digital interactive lessons. Time to review for a [genetics](#) test? You can have stations set up where students will move around the room.

They can work through individual lessons such as Gregor Mendel and an Introduction to Genetics, Asexual and Sexual Reproduction, Mitosis and the Cell Cycle, Meiosis, Punnett Squares, Pedigree Charts, and Variation of Traits and Genetics Disorders. This route may take more than one day. It just depends on how long your classes are and how much time you can devote to review. I personally like the first approach to using digital interactive lessons as a science center.



# For ELL Students

With technology, there are so many awesome opportunities for students that do not speak English as their primary language to learn science content in schools that speak predominantly English. That goes vice versa as well. If you are trying to learn in any language you are unfamiliar with, technology is here to help!



**Digital Science  
INTERACTIVE  
Lessons**  
*for*

**ELL STUDENTS**

There are many options that students can use to learn science material. As a teacher that only speaks English, you can imagine how difficult it is to teach a student that speaks another language. I'm sure there are other teachers out there with the same dilemma.

With technology, I have been able to give my students the science lesson and have them use Google translate in order to understand what the lesson is saying. Now, I'm working on creating digital science lessons in Spanish, so that one step is taken out.



# Enrichment/ Tutoring

I know that many schools set up a time during the day just for enrichment/tutoring.



**Digital Science**  
**INTERACTIVE**  
**Lessons**  
*for*

**ENRICHMENT/  
TUTORING**

Many schools only set up this time for reading/math, but some do science too! Especially those that test in science. Interactive lessons are a great way to review standards-based science material and practice!

