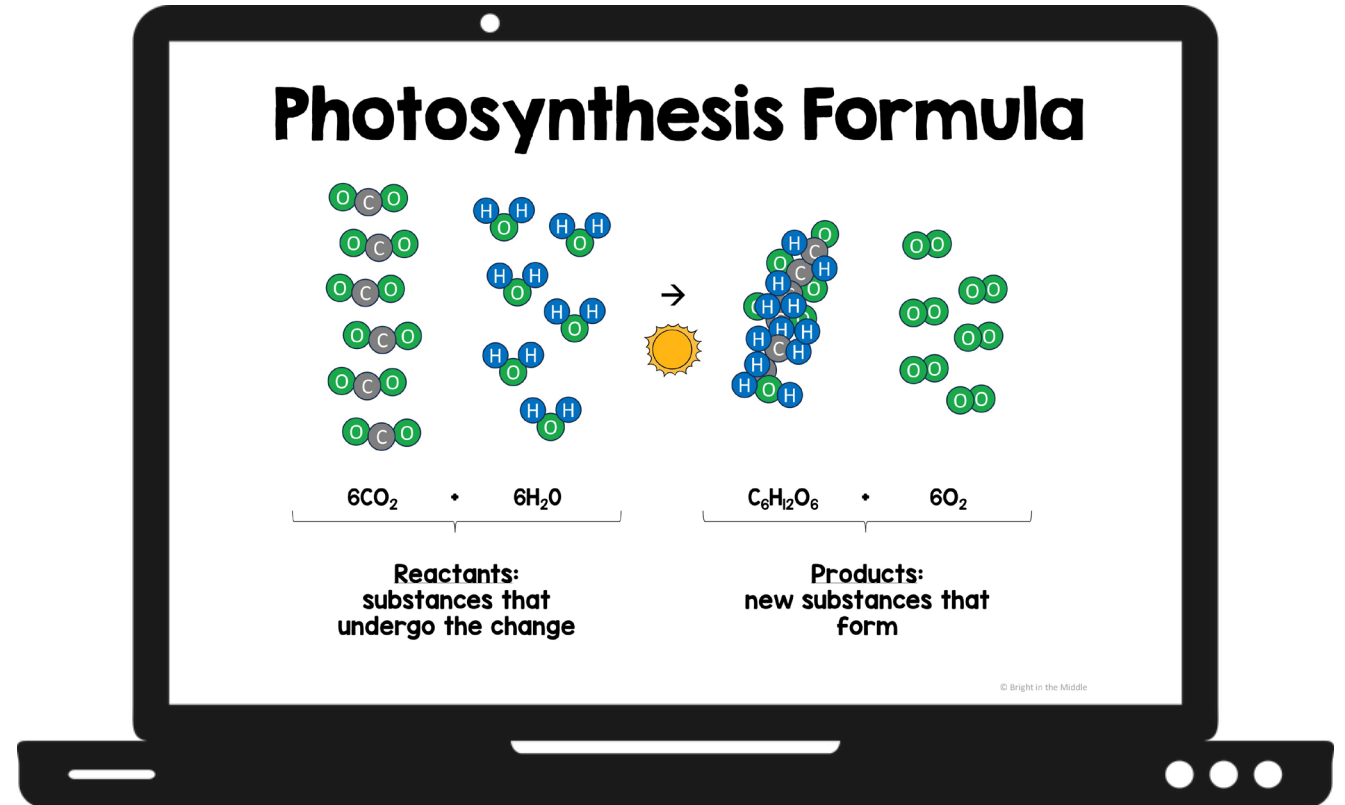


Photosynthesis and Cellular Respiration Interactive Lesson

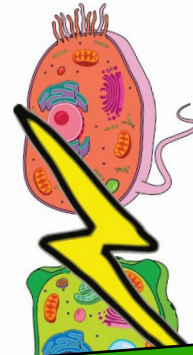
PRINT and DIGITAL



Compatible with Google Slides and PPT

ATP

- Cells **need to make this ATP** energy.
- Cells can make this in different ways depending on what type of



A key is also included!

Drag the circle to the correct response.

Photosynthesis takes place in the:

- nucleus
- mitochondria
- lysosome
- chloroplast



Drag and Drop

Drag the correct term to the appropriate location to complete the sentence.

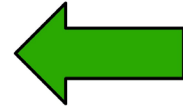
Cellular respiration is process that
uses ----- and -----
to make -----

and

water

glucose

Drag an arrow to all
that apply.



Which of the following are products of
cellular respiration?

carbon dioxide

glucose

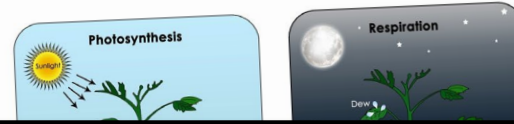
water

ATP

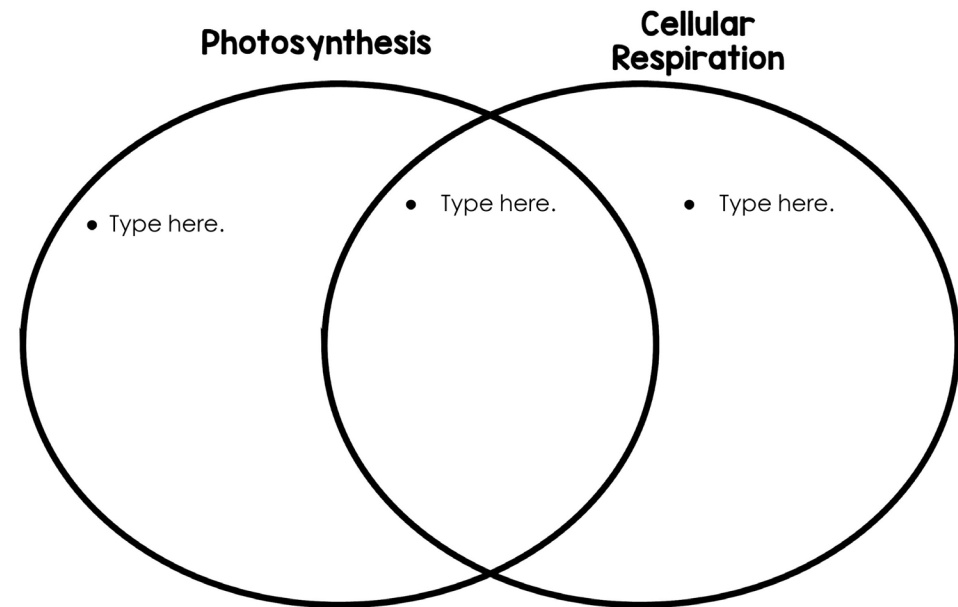
Type in the Text Box

Although plants do not need to eat to obtain their energy, they do undergo cellular respiration. Why do you think that is? Describe in the text box below.

Type here.



In the diagram below, compare photosynthesis and cellular respiration.



and more!

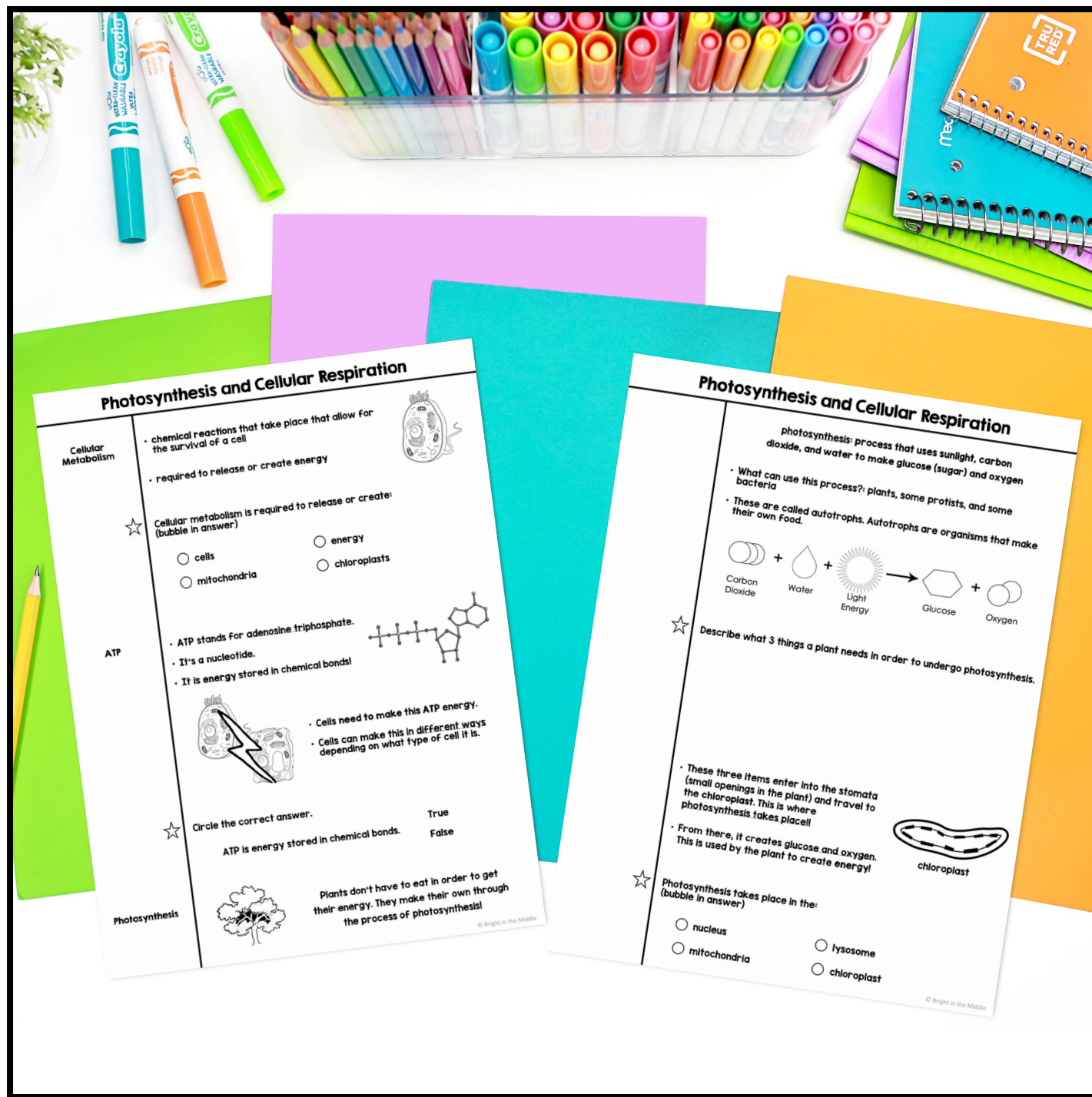
In the text boxes below, in the 1st Column, type in what you already KNOW about photosynthesis and cellular respiration. In the 2nd column, type in what you WANT to learn about photosynthesis and cellular respiration. The last column will be completed at the end of the lesson (what you've learned).

K	W	L
• Type here.	• Type here.	

Match each term with the appropriate definition.

- | | |
|------------------------|------------------------------------------------------------------|
| photosynthesis → | new substances that form |
| cellular respiration → | energy stored in chemical bonds |
| fermentation → | sunlight, carbon dioxide, and water → glucose (sugar) and oxygen |
| reactants → | substances that undergo the change |
| products → | oxygen and glucose (sugar) → carbon dioxide, water, and ATP |
| ATP → | glucose is broken down without oxygen |

A paper version is also included with interactive activities embedded.



Photosynthesis and Cellular Respiration

Cellular Metabolism

- chemical reactions that take place that allow for the survival of a cell
- required to release or create energy

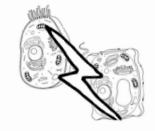
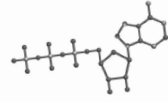


☆ Cellular metabolism is required to release or create: (bubble in answer)

- cells
- mitochondria
- energy
- chloroplasts

ATP

- ATP stands for adenosine triphosphate.
- It's a nucleotide.
- It is energy stored in chemical bonds!



- Cells need to make this ATP energy.
- Cells can make this in different ways depending on what type of cell it is.

☆ Circle the correct answer.

- ATP is energy stored in chemical bonds. True
- False

Photosynthesis



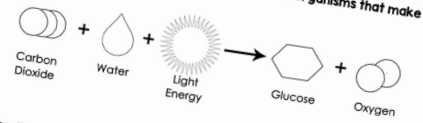
Plants don't have to eat in order to get their energy. They make their own through the process of photosynthesis!

© Bright in the Middle

Photosynthesis and Cellular Respiration

photosynthesis: process that uses sunlight, carbon dioxide, and water to make glucose (sugar) and oxygen

- What can use this process?: plants, some protists, and some bacteria
- These are called autotrophs. Autotrophs are organisms that make their own food.



☆ Describe what 3 things a plant needs in order to undergo photosynthesis.

- These three items enter into the stomata (small openings in the plant) and travel to the chloroplast. This is where photosynthesis takes place!

- From there, it creates glucose and oxygen. This is used by the plant to create energy!

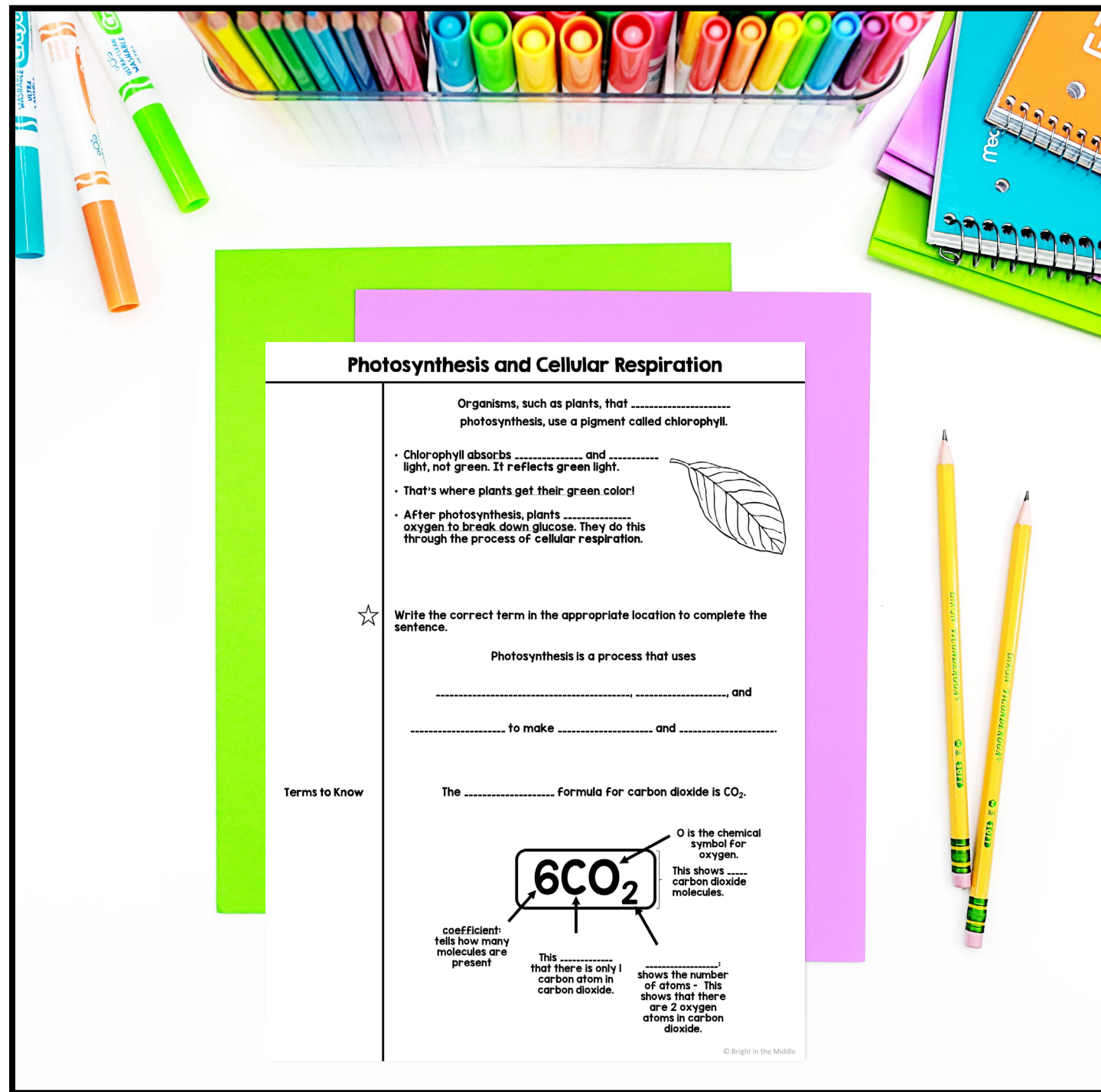


☆ Photosynthesis takes place in the: (bubble in answer)

- nucleus
- mitochondria
- lysosome
- chloroplast

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**Guided
Cornell
notes are
included as
well!**



Photosynthesis and Cellular Respiration

Organisms, such as plants, that _____ photosynthesis, use a pigment called chlorophyll.

- Chlorophyll absorbs _____ and _____ light, not green. It reflects green light.
- That's where plants get their green color!
- After photosynthesis, plants _____ oxygen to break down glucose. They do this through the process of cellular respiration.

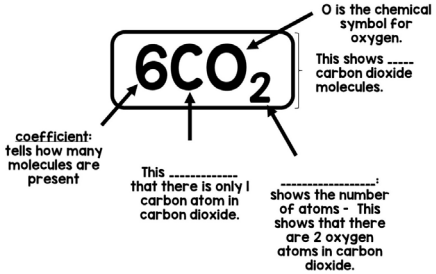


☆ Write the correct term in the appropriate location to complete the sentence.

Photosynthesis is a process that uses _____, and _____ to make _____ and _____.

Terms to Know

The _____ formula for carbon dioxide is CO₂.



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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!

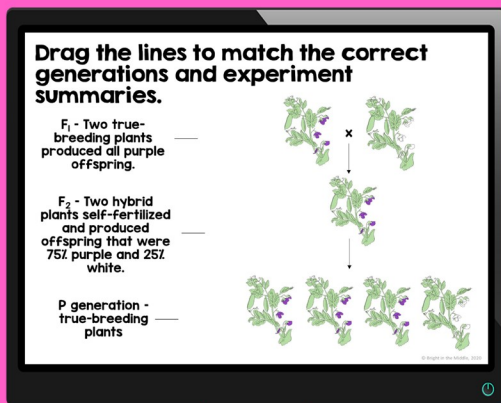
Digital Science
INTERACTIVE
Lessons
for

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.

Digital Science
INTERACTIVE
Lessons
for

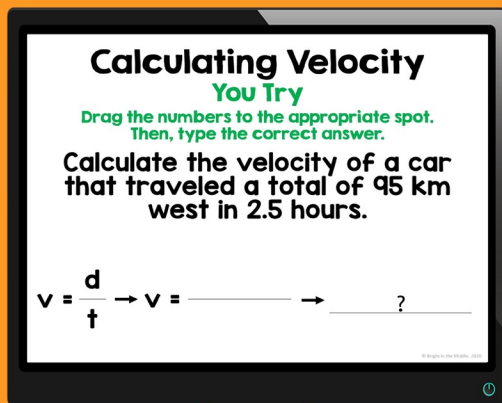
DISTANCE LEARNING

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



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

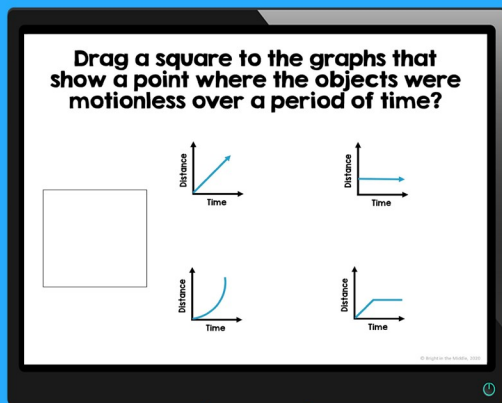
DIRECT INSTRUCTION

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.



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.

Digital Science
INTERACTIVE
Lessons
for

SCIENCE CENTERS



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!

