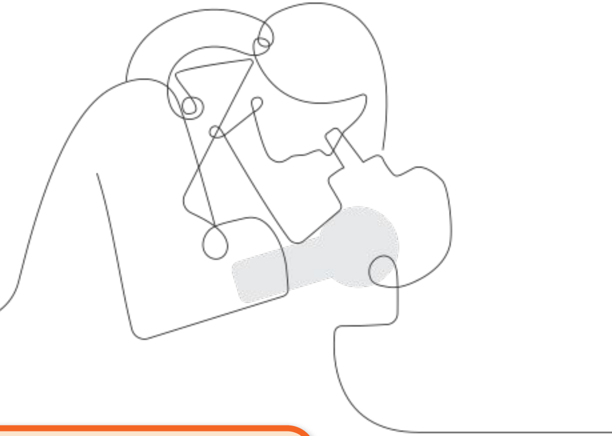
Do Now: *Use the link in the chat to add your best remote learning tips and tricks for teaching Amplify Science to the Jamboard.*

Amplify Science

Unit Internalization & Guided Planning

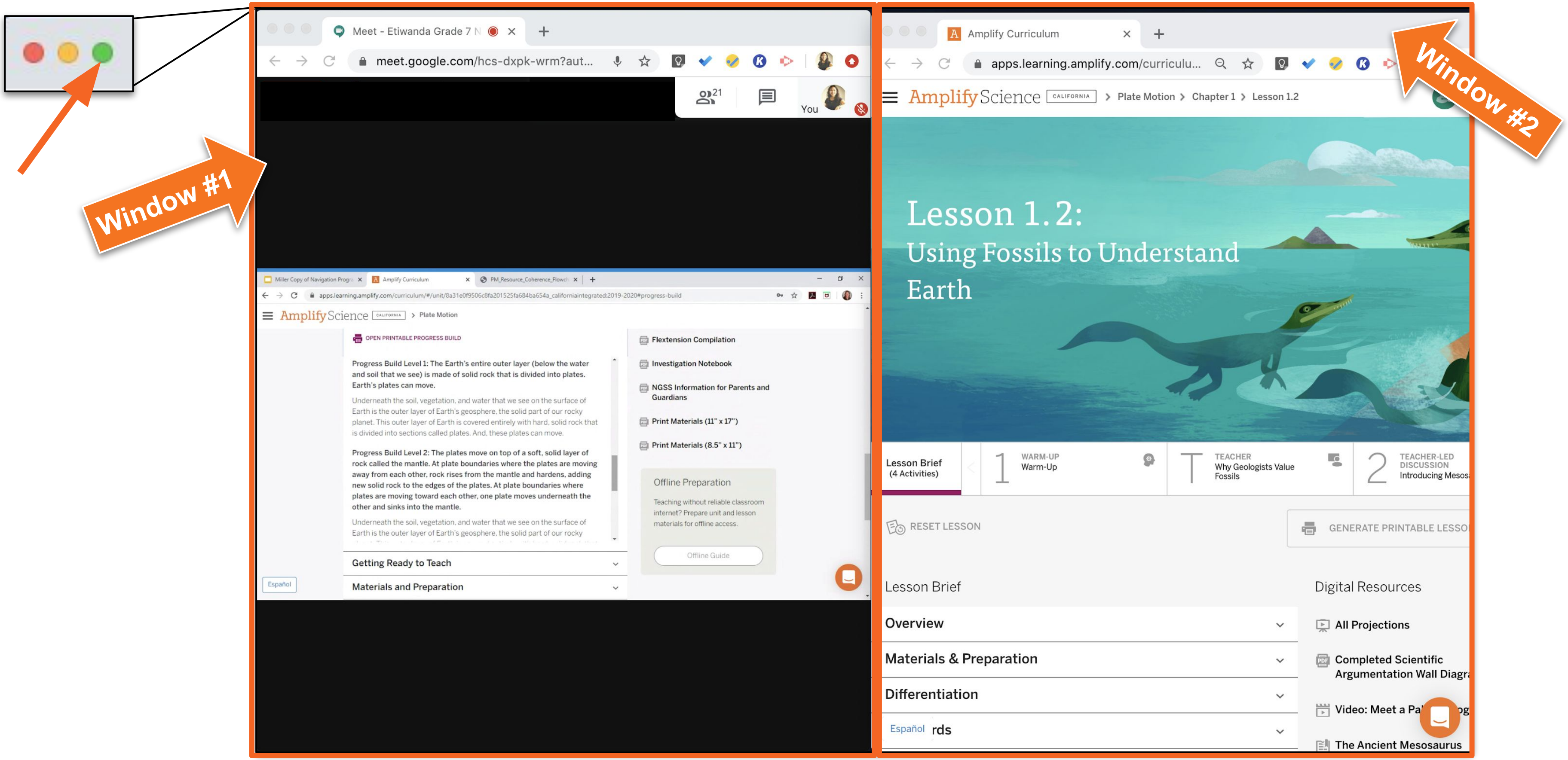
Deep-dive and strengthening workshop
Grade 8, Magnetic Fields



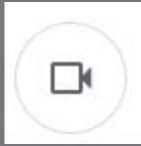
LAUSD
12/12/2020
Presented by Your Name

In a new tab, please log into your Amplify Science account through Schoology.

Use two windows for today's webinar



Norms: Establishing a Culture of Learners



- Please keep your camera on, if possible.
- Take some time to orient yourself to the platform
  - *"where's the chat box? what are these squares at the top of my screen?, where's the mute button?"*

- Mute your microphone to reduce background noise unless sharing with the group

- The chat box is available for posting questions or responses to during the training

- Make sure you have a note-catcher present

- Be an active participant - chat, ask questions, discuss, share!

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Workshop goals

By the end of this workshop, you will be able to:

- Internalize your upcoming unit.
- Plan for collecting **evidence of student learning** in order to make instructional decisions to **support diverse learner needs**.
- Gather resources to develop a multi-day plan for implementing Amplify Science within your class schedule and instructional format.

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Plan for the day

- Framing the day
  - Welcome
  - Instructional Materials
- Unit Internalization
- Planning to teach
  - Collecting evidence of student learning to meet diverse learner needs
- Reflection and closing

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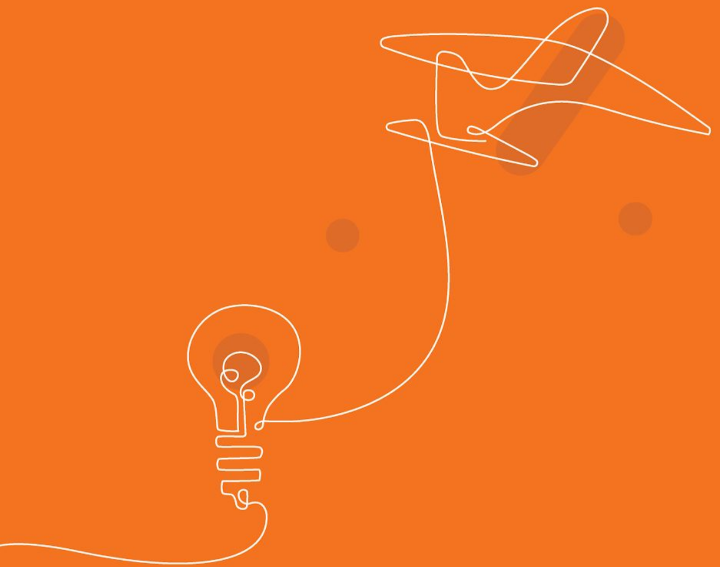
Plan for the day

- **Framing the day**
  - **Welcome**
  - **Instructional Materials**
- Unit Internalization
- Planning to teach
  - Collecting evidence of student learning to meet diverse learner needs
- Reflection and closing



Instructional Materials

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Middle school course curriculum structure

Integrated model*

Grade 6

- Launch: Microbiome
- Metabolism
- Engineering Internship: Metabolism
- Traits and Reproduction
- Thermal Energy
- Ocean, Atmosphere, and Climate
- Weather Patterns
- Earth's Changing Climate
- Engineering Internship: Earth's Changing Climate

Grade 7

- Launch: Geology on Mars
- Plate Motion
- Engineering Internship: Plate Motion
- Rock Transformations
- Phase Change
- Engineering Internship: Phase Change
- Chemical Reactions
- Populations and Resources
- Matter and Energy in Ecosystems

Grade 8

- Launch: Harnessing Human Energy
- Force and Motion
- Engineering Internship: Force and Motion
- Magnetic Fields
- Light Waves
- Earth, Moon, and Sun
- Natural Selection
- Engineering Internship: Natural Selection
- Evolutionary History

AmplifyScience

authored by THE LAWRENCE HALL OF SCIENCE UNIVERSITY OF CALIFORNIA, BERKELEY

Launch unit

- First unit
- 11 lessons

Core units

- Majority of units
- 19 lessons

Engineering Internships

- Two per year
- 10 lessons

Standard Amplify Science Curriculum

JUMP DOWN TO UNIT GUIDE

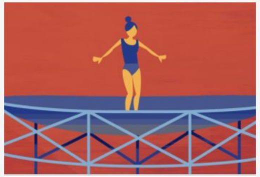
GENERATE PRINTABLE TEACHER'S GUIDE

Standard Amplify Science Curriculum

The Magnetic Fields unit has **19 lessons** across 4 chapters. Each lesson is written to be **45 minutes** long.

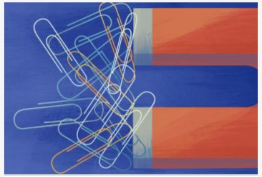
Chapter 1: Modeling Magnetic Force

6 Lessons



Chapter 2: Investigating Potential Energy

4 Lessons



Chapter 3: Exploring the Strength of Magnetic Force

5 Lessons

Chapter 4: Designing Roller Coasters

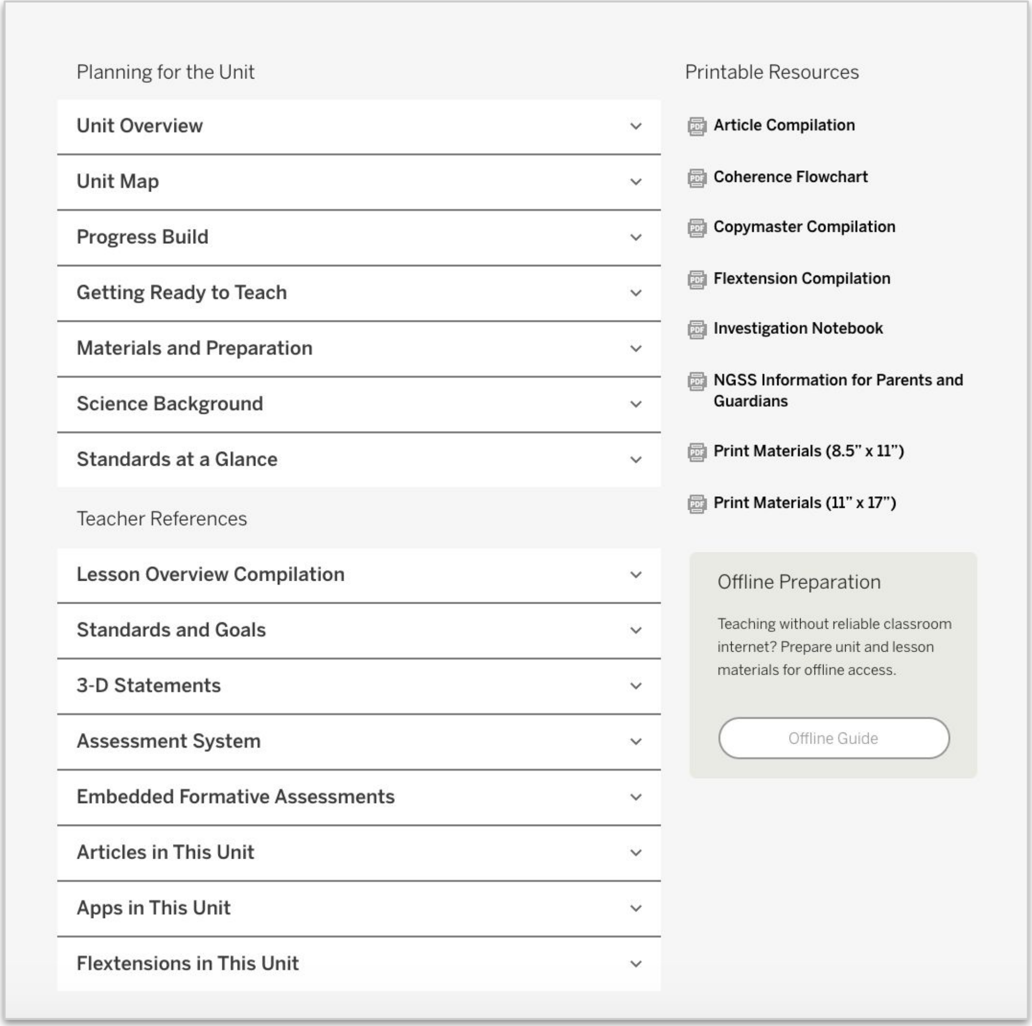
4 Lessons

Español

Standard Amplify Science Curriculum

On the standard Amplify Science platform you will find all of your key documents for planning for the unit.

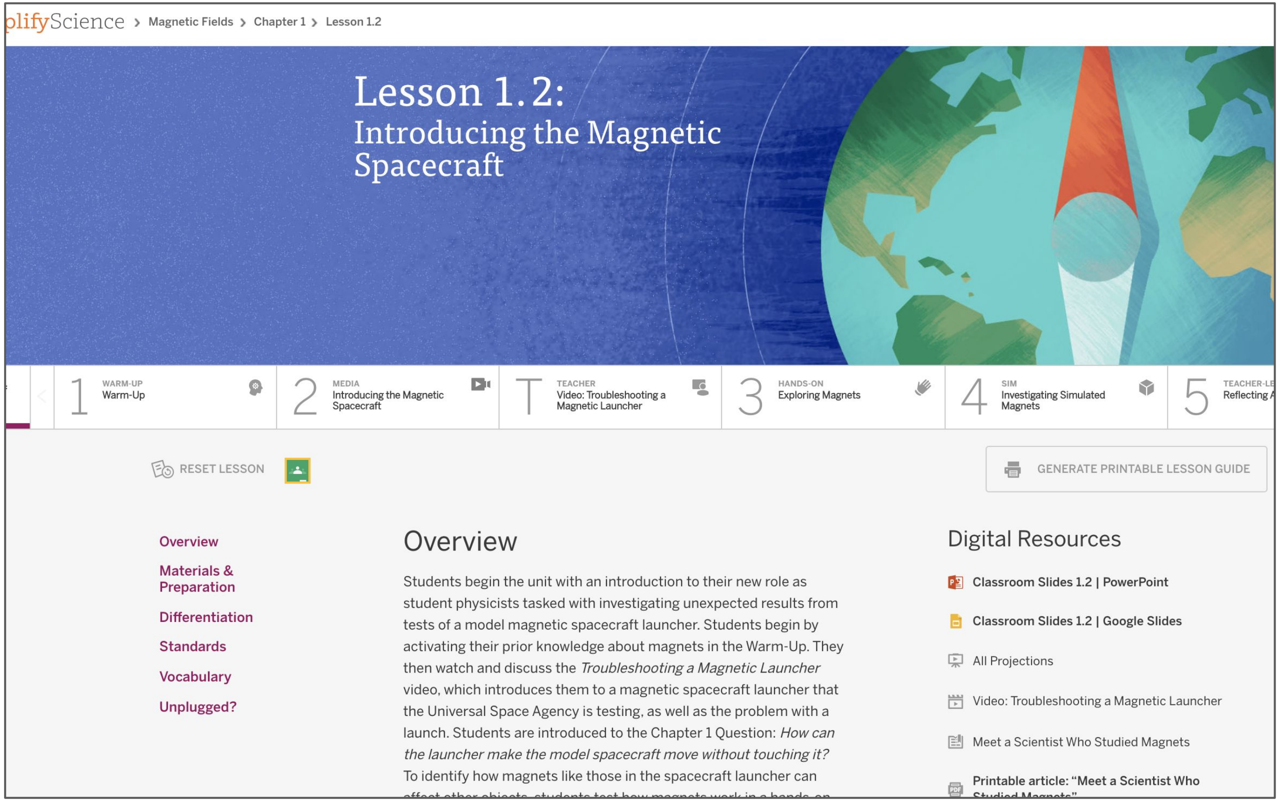
We will be using many of these in today's workshop.



Standard Amplify Science Curriculum

On the standard Amplify Science platform you will find key lesson level information.

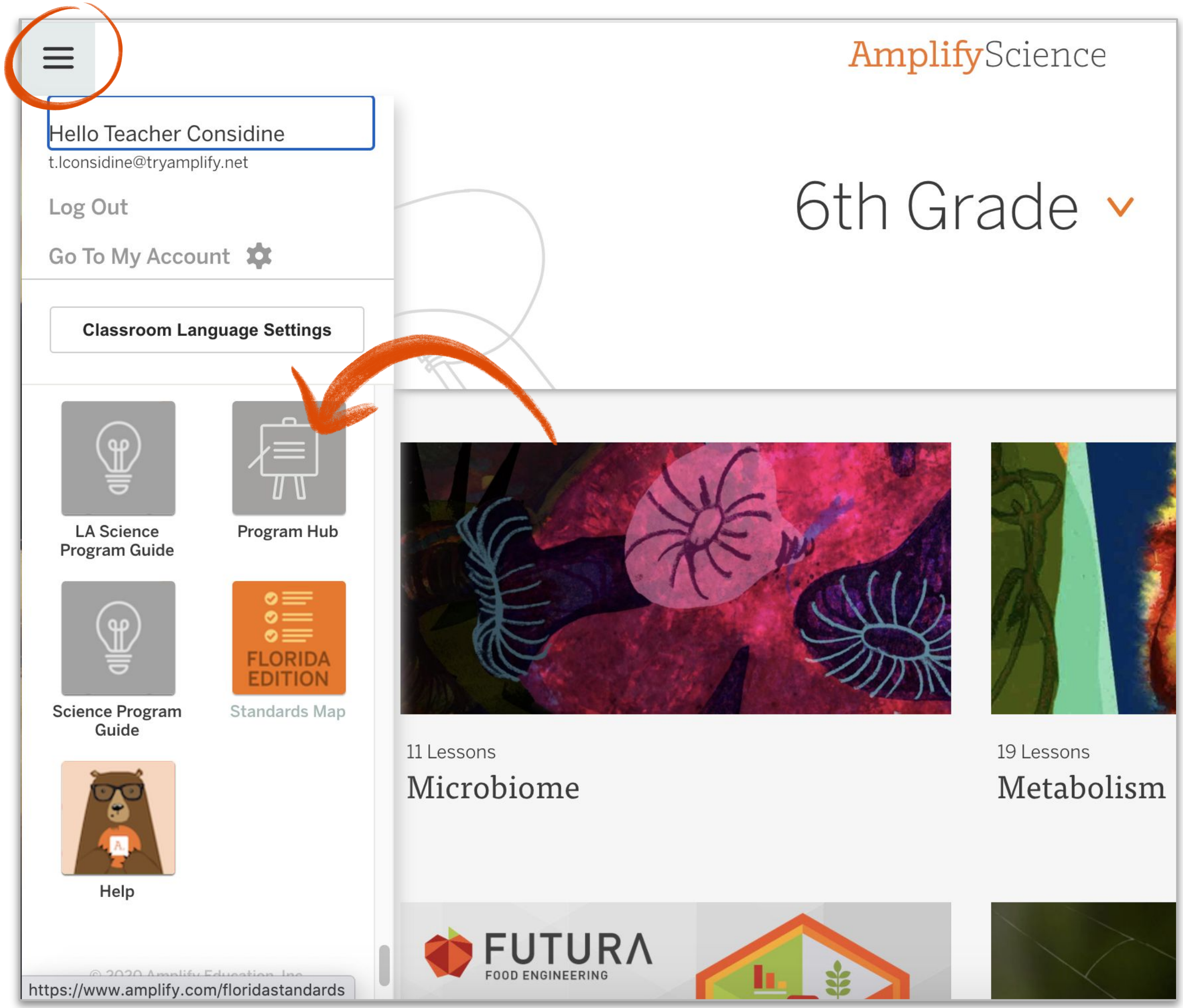
We will be navigating to lessons during today's workshop in order to better plan for collecting evidence of student learning in order to plan to meet the needs of diverse learners.



Amplify Science @Home Curriculum

Amplify Science @Home Curriculum

In addition to the standard Amplify Science curriculum, you also have access to Amplify Science @Home Curriculum on the Science Program Hub.



AmplifyScience@Home

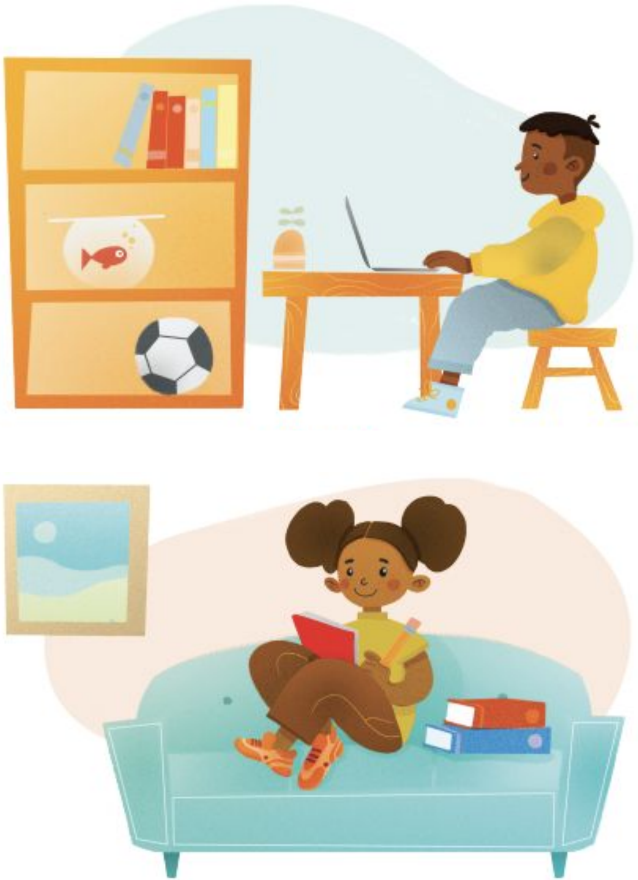
Two different options:

@Home Units

- Digital or print-based versions of Amplify Science units condensed by about 50%

@Home Videos

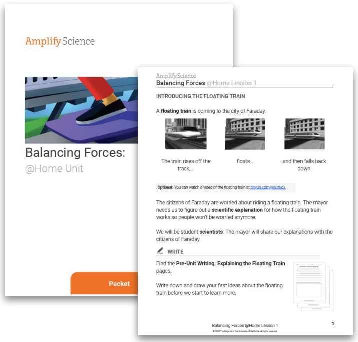
- Video playlists of Amplify Science lessons, taught by real Amplify Science teachers



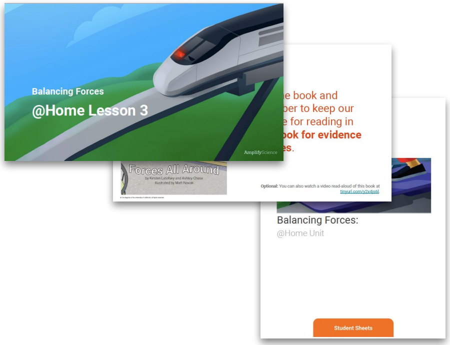
@Home Units

A shift in approach to respond to user feedback

Original approach: two different resources

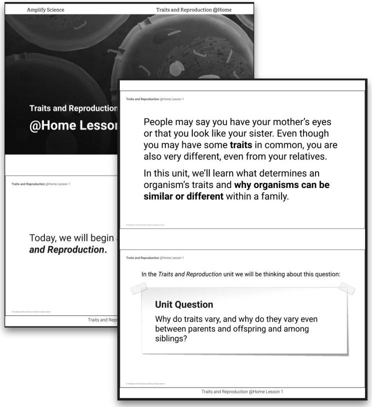


Print-based: @Home packets

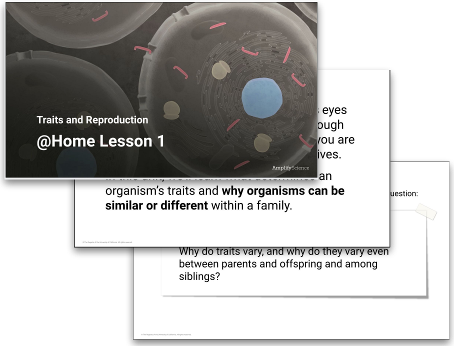


Digital: @Home slides and student sheets

Updated approach: one resource, two formats



Print-based: PDFs of @Home Slides and student sheets

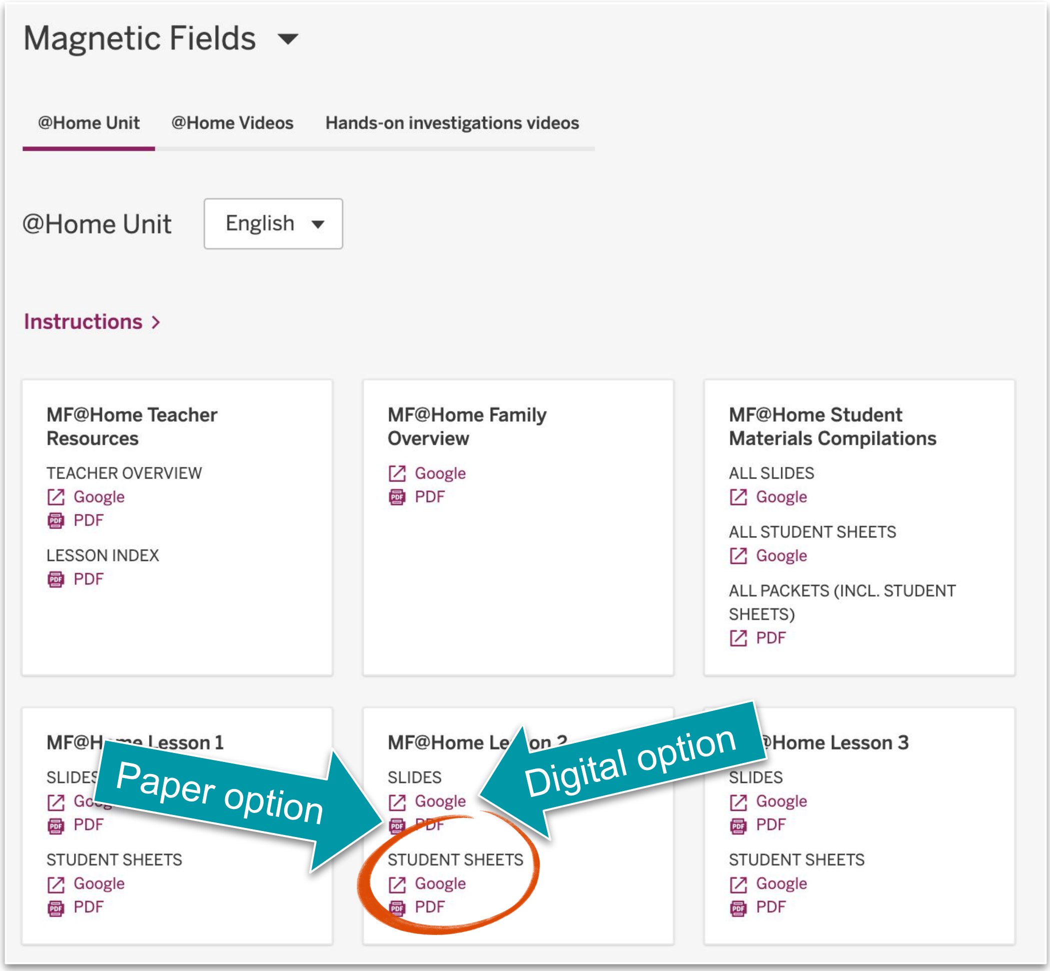


Digital: Google Slides @Home Slides and Google Doc student sheets

Amplify Science @Home Curriculum

You have access to the Magnetic Fields @Home Unit.

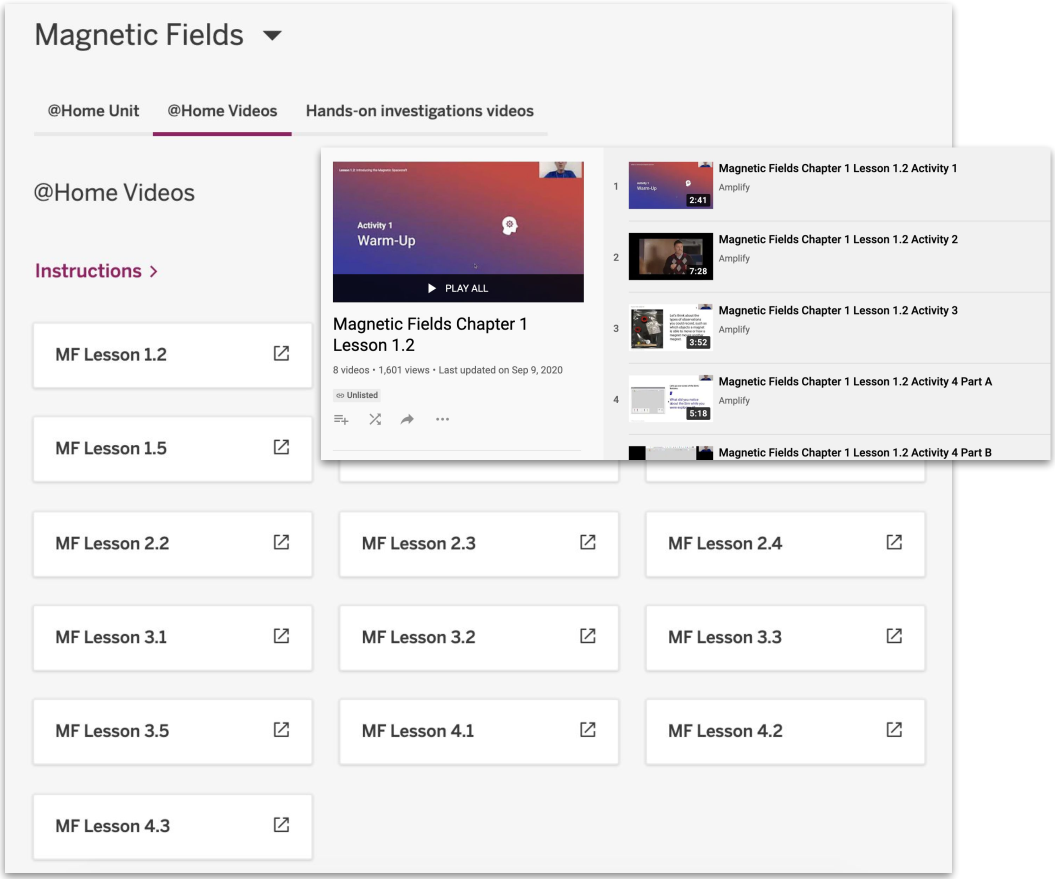
The Magnetic Fields @Home Unit has **13 lessons.** Each lesson is written to be **30 minutes** long.



Amplify Science @Home Curriculum

You have access to the Magnetic Fields @Home Videos.

There are 16 @Home Videos for the Magnetic Fields unit. This covers all lessons expect for the assessment lessons (1.1, 3.4, and 4.4). The video playlists on YouTube teach the standard Amplify Science Lessons.



Questions?

Plan for the day

- Framing the day
  - Welcome
  - Instructional Materials
- **Unit Internalization**
- Planning to teach
  - Collecting evidence of student learning to meet diverse learner needs
- Reflection and closing

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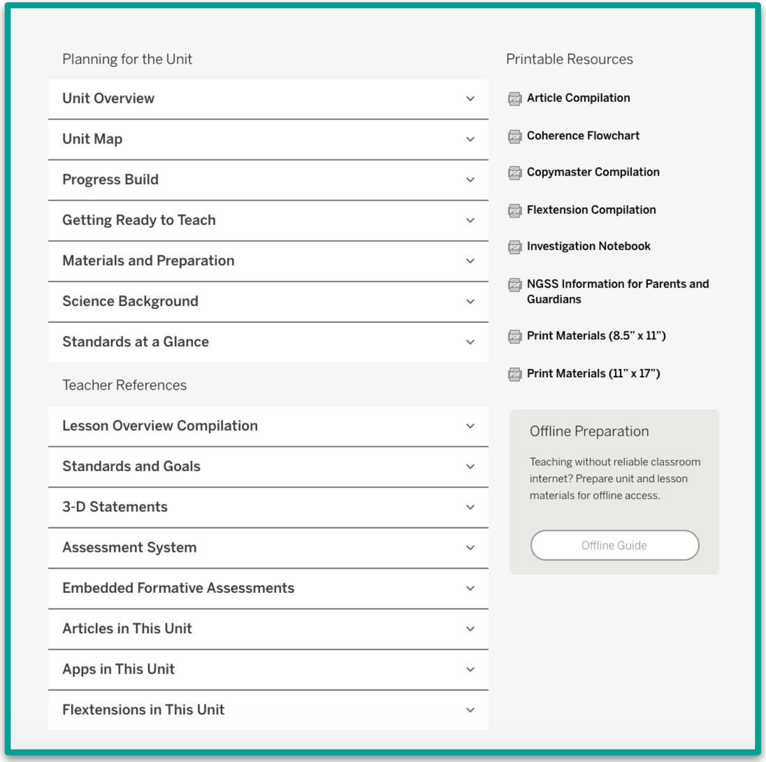
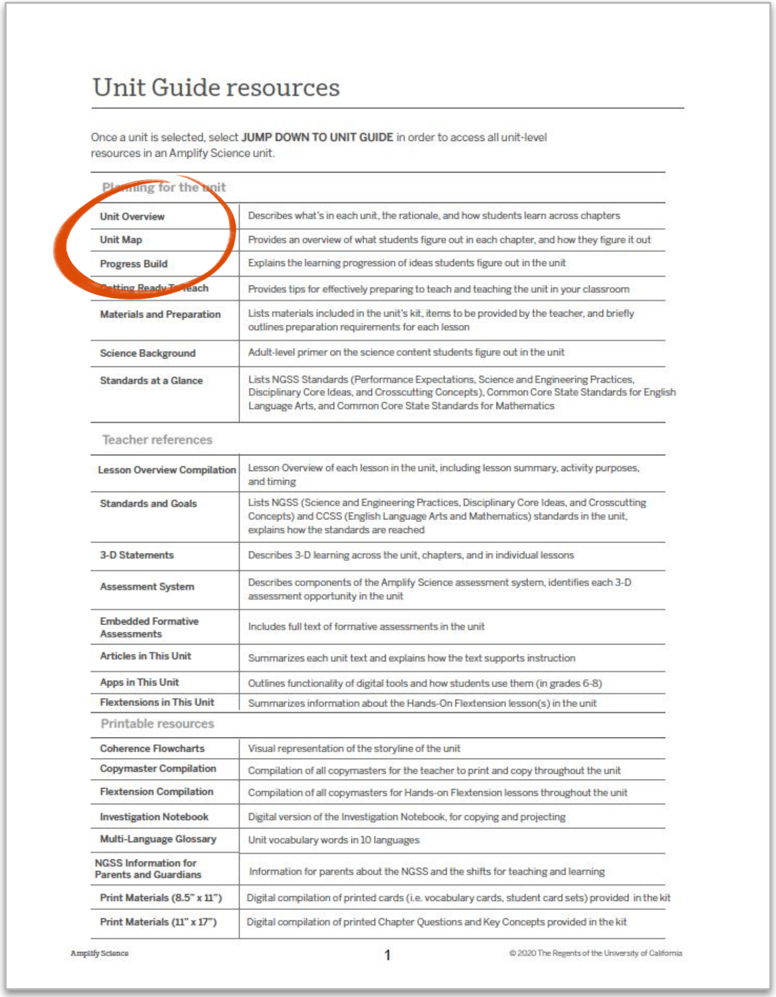
Unit Guide Resources



Page 1

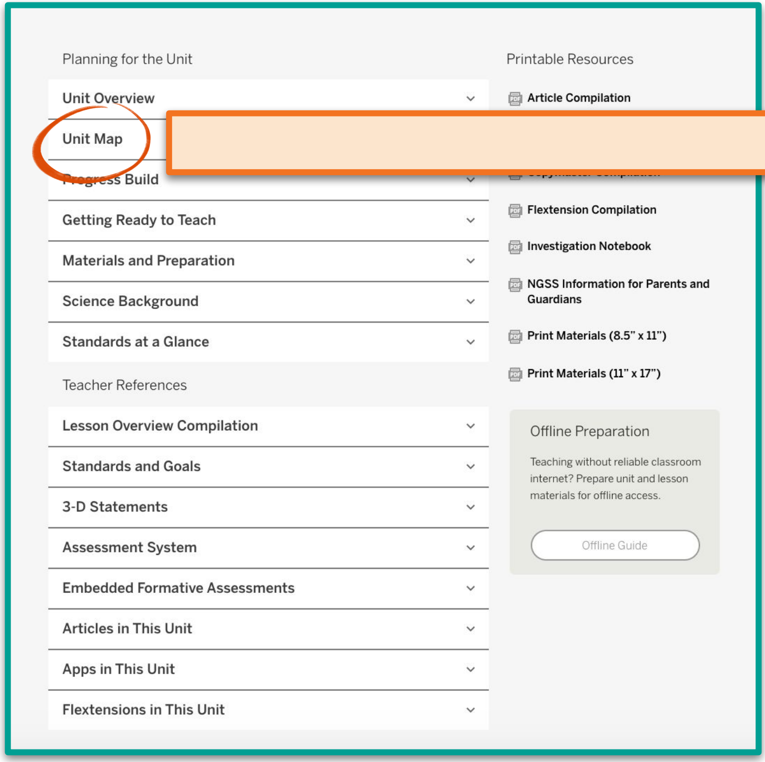


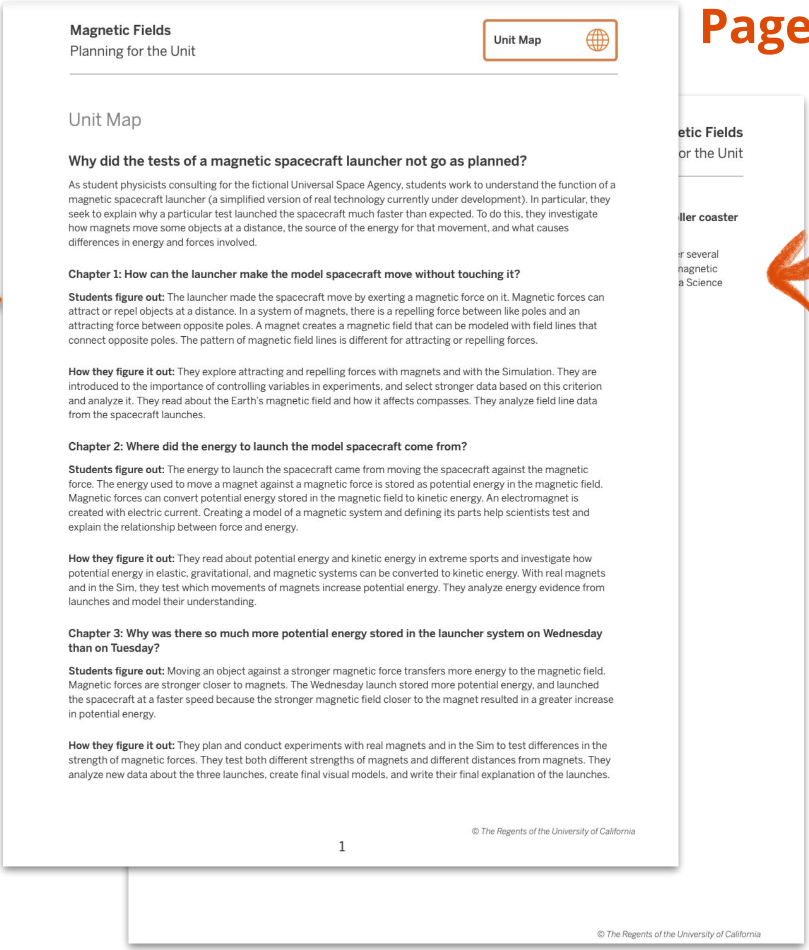
Unit Guide resources

Once a unit is selected, select **JUMP DOWN TO UNIT GUIDE** in order to access all unit-level resources in an Amplify Science unit.

Planning for the unit	
Unit Overview	Describes what's in each unit, the rationale, and how students learn across chapters
Unit Map	Provides an overview of what students figure out in each chapter, and how they figure it out
Progress Build	Explains the learning progression of ideas students figure out in the unit
Getting Ready To Teach	Provides tips for effectively preparing to teach and teaching the unit in your classroom
Materials and Preparation	Lists materials included in the unit's kit, items to be provided by the teacher, and briefly outlines preparation requirements for each lesson
Science Background	Adult-level primer on the science content students figure out in the unit
Standards at a Glance	Lists NGSS Standards (Performance Expectations, Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts), Common Core State Standards for English Language Arts, and Common Core State Standards for Mathematics
Teacher references	
Lesson Overview Compilation	Lesson Overview of each lesson in the unit, including lesson summary, activity purposes, and timing
Standards and Goals	Lists NGSS (Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts) and CCSS (English Language Arts and Mathematics) standards in the unit, explains how the standards are reached
3-D Statements	Describes 3-D learning across the unit, chapters, and in individual lessons
Assessment System	Describes components of the Amplify Science assessment system, identifies each 3-D assessment opportunity in the unit
Embedded Formative Assessments	Includes full text of formative assessments in the unit
Articles in This Unit	Summarizes each unit text and explains how the text supports instruction
Apps in This Unit	Outlines functionality of digital tools and how students use them (in grades 6-8)
Flextensions in This Unit	Summarizes information about the Hands-On Flextension lesson(s) in the unit
Printable resources	
Coherence Flowcharts	Visual representation of the storyline of the unit
Copymaster Compilation	Compilation of all copymasters for the teacher to print and copy throughout the unit
Flextension Compilation	Compilation of all copymasters for Hands-on Flextension lessons throughout the unit
Investigation Notebook	Digital version of the Investigation Notebook, for copying and projecting
Multi-Language Glossary	Unit vocabulary words in 10 languages
NGSS Information for Parents and Guardians	Information for parents about the NGSS and the shifts for teaching and learning
Print Materials (8.5" x 11")	Digital compilation of printed cards (i.e. vocabulary cards, student card sets) provided in the kit
Print Materials (11" x 17")	Digital compilation of printed Chapter Questions and Key Concepts provided in the kit

Unit Map





Magnetic Fields
Planning for the Unit

Unit Map

Unit Map

Why did the tests of a magnetic spacecraft launcher not go as planned?

As student physicists consulting for the fictional Universal Space Agency, students work to understand the function of a magnetic spacecraft launcher (a simplified version of real technology currently under development). In particular, they seek to explain why a particular test launched the spacecraft much faster than expected. To do this, they investigate how magnets move some objects at a distance, the source of the energy for that movement, and what causes differences in energy and forces involved.

Chapter 1: How can the launcher make the model spacecraft move without touching it?

Students figure out: The launcher made the spacecraft move by exerting a magnetic force on it. Magnetic forces can attract or repel objects at a distance. In a system of magnets, there is a repelling force between like poles and an attracting force between opposite poles. A magnet creates a magnetic field that can be modeled with field lines that connect opposite poles. The pattern of magnetic field lines is different for attracting or repelling forces.

How they figure it out: They explore attracting and repelling forces with magnets and with the Simulation. They are introduced to the importance of controlling variables in experiments, and select stronger data based on this criterion and analyze it. They read about the Earth's magnetic field and how it affects compasses. They analyze field line data from the spacecraft launches.

Chapter 2: Where did the energy to launch the model spacecraft come from?

Students figure out: The energy to launch the spacecraft came from moving the spacecraft against the magnetic force. The energy used to move a magnet against a magnetic force is stored as potential energy in the magnetic field. Magnetic forces can convert potential energy stored in the magnetic field to kinetic energy. An electromagnet is created with electric current. Creating a model of a magnetic system and defining its parts help scientists test and explain the relationship between force and energy.

How they figure it out: They read about potential energy and kinetic energy in extreme sports and investigate how potential energy in elastic, gravitational, and magnetic systems can be converted to kinetic energy. With real magnets and in the Sim, they test which movements of magnets increase potential energy. They analyze energy evidence from launches and model their understanding.

Chapter 3: Why was there so much more potential energy stored in the launcher system on Wednesday than on Tuesday?

Students figure out: Moving an object against a stronger magnetic force transfers more energy to the magnetic field. Magnetic forces are stronger closer to magnets. The Wednesday launch stored more potential energy, and launched the spacecraft at a faster speed because the stronger magnetic field closer to the magnet resulted in a greater increase in potential energy.

How they figure it out: They plan and conduct experiments with real magnets and in the Sim to test differences in the strength of magnetic forces. They test both different strengths of magnets and different distances from magnets. They analyze new data about the three launches, create final visual models, and write their final explanation of the launches.

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Pages 2-3

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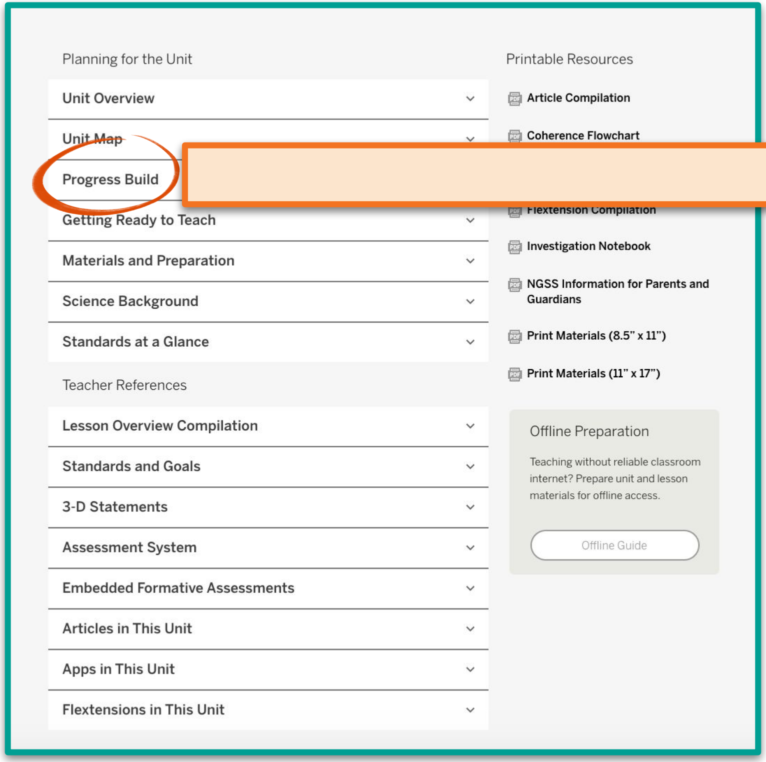
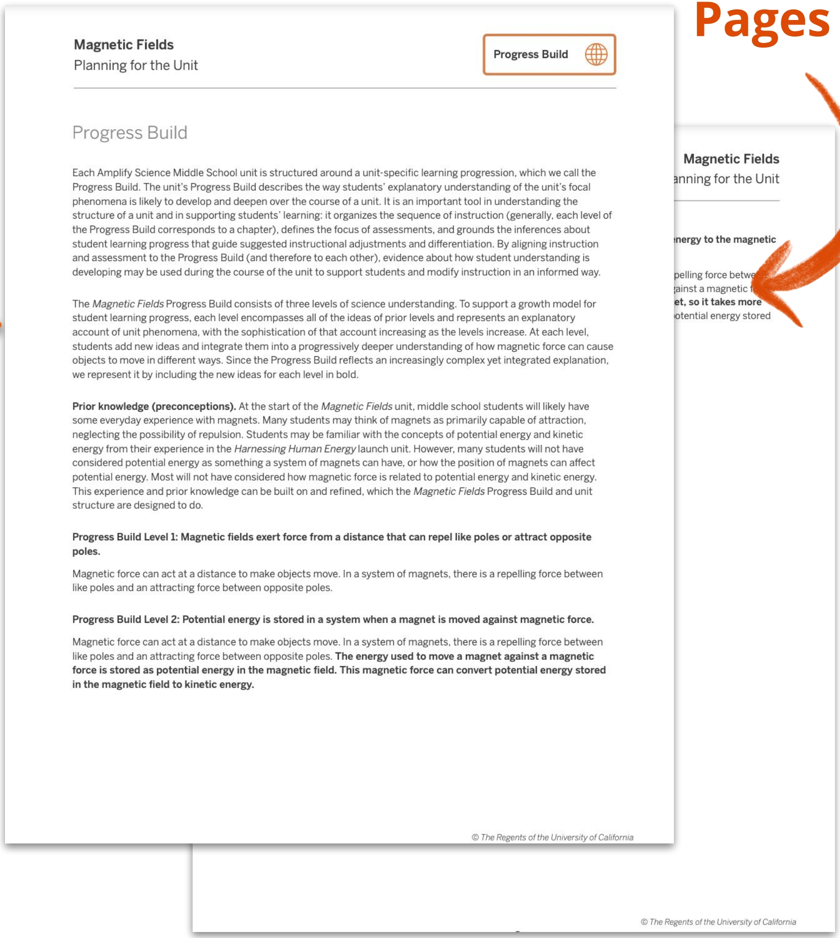
Progress Build



Pages 4-5



Magnetic Fields
Planning for the Unit

Progress Build

Progress Build

Each Amplify Science Middle School unit is structured around a unit-specific learning progression, which we call the Progress Build. The unit's Progress Build describes the way students' explanatory understanding of the unit's focal phenomena is likely to develop and deepen over the course of a unit. It is an important tool in understanding the structure of a unit and in supporting students' learning: it organizes the sequence of instruction (generally, each level of the Progress Build corresponds to a chapter), defines the focus of assessments, and grounds the inferences about student learning progress that guide suggested instructional adjustments and differentiation. By aligning instruction and assessment to the Progress Build (and therefore to each other), evidence about how student understanding is developing may be used during the course of the unit to support students and modify instruction in an informed way.

The *Magnetic Fields* Progress Build consists of three levels of science understanding. To support a growth model for student learning progress, each level encompasses all of the ideas of prior levels and represents an explanatory account of unit phenomena, with the sophistication of that account increasing as the levels increase. At each level, students add new ideas and integrate them into a progressively deeper understanding of how magnetic force can cause objects to move in different ways. Since the Progress Build reflects an increasingly complex yet integrated explanation, we represent it by including the new ideas for each level in bold.

Prior knowledge (preconceptions). At the start of the *Magnetic Fields* unit, middle school students will likely have some everyday experience with magnets. Many students may think of magnets as primarily capable of attraction, neglecting the possibility of repulsion. Students may be familiar with the concepts of potential energy and kinetic energy from their experience in the *Harnessing Human Energy* launch unit. However, many students will not have considered potential energy as something a system of magnets can have, or how the position of magnets can affect potential energy. Most will not have considered how magnetic force is related to potential energy and kinetic energy. This experience and prior knowledge can be built on and refined, which the *Magnetic Fields* Progress Build and unit structure are designed to do.

Progress Build Level 1: Magnetic fields exert force from a distance that can repel like poles or attract opposite poles.

Magnetic force can act at a distance to make objects move. In a system of magnets, there is a repelling force between like poles and an attracting force between opposite poles.

Progress Build Level 2: Potential energy is stored in a system when a magnet is moved against magnetic force.

Magnetic force can act at a distance to make objects move. In a system of magnets, there is a repelling force between like poles and an attracting force between opposite poles. **The energy used to move a magnet against a magnetic force is stored as potential energy in the magnetic field. This magnetic force can convert potential energy stored in the magnetic field to kinetic energy.**

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Unit Internalization Work Time

Pages 2-5

Guided Unit Internalization

Part 1: Unit-level internalization

Unit title:

What is the phenomenon students are investigating in your unit?

Unit Question:	**Student role:**

By the end of the unit, students figure out ...

What science ideas do students need to figure out in order to explain the phenomenon?

Page 6

Magnetic Fields
Planning for the Unit

Unit Map

Unit Map

Why did the tests of a magnetic spacecraft launcher not go as planned?

As student physicists consulting for the fictional Universal Space Agency, students work to understand the function of a magnetic spacecraft launcher (a simplified version of real technology currently under development). In particular, they seek to explain why a particular test launched the spacecraft much faster than expected. To do this, they investigate how magnets move some objects at a distance, the source of the energy for that movement, and what causes differences in energy and forces involved.

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How they figure it out: They explore attracting and repellin introduced to the importance of controlling variables in exp and analyze it. They read about the Earth's magnetic field a from the spacecraft launches.

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Magnetic Fields
Planning for the Unit

Progress Build

Progress Build

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Unit Guide Document

Unit Map

Lesson Overview Compilation

Progress Buld

Guided Unit Internalization

Part 1: Unit-level internalization

Unit title: Magnetic Fields

What is the phenomenon students are investigating in your unit?

A magnetic spacecraft exceeds its target speed in a test launch at the fictional Universal Space Agency.

Unit Question: Why do magnets move objects in different ways?

Student role: Student physicists

By the end of the unit, students figure out ...

Moving an object against a stronger magnetic force transfers more energy to the magnetic field. Magnetic forces are stronger closer to magnets. The Wednesday launch stored more potential energy, and launched the spacecraft at a faster speed because the stronger magnetic field closer to the magnet resulted in a greater increase in potential energy.

What science ideas do students need to figure out in order to explain the phenomenon?

Magnetic force can act at a distance to make objects move. In a system of magnets, there is a repelling force between like poles and an attracting force between opposite poles. The energy used to move a magnet against a magnetic force is stored as potential energy in the magnetic field. Magnetic force is stronger closer to a magnet, so it takes more energy to move against magnetic force closer to a magnet. This magnetic force can convert potential energy stored in the magnetic field to kinetic energy.

Questions?

Plan for the day

- Framing the day
    - Welcome
    - Instructional Materials
- Unit Internalization
- **Planning to teach**
    - **Collecting evidence of student learning to meet diverse learner needs**
- Reflection and closing

Amplify.

Unit Map

Unit Map

Why did the tests of a magnetic spacecraft launcher not go as planned?

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Chapter 1: Modeling Magnetic Force

JUMP DOWN TO CHAPTER OVERVIEW

Lesson 1.1:
Pre-Unit Assessment

SETTINGS

Lesson 1.2:
Introducing the Magnetic Spacecraft

Lesson 1.3:
Evaluating Magnetic Force Evidence

Lesson 1.4:
"Earth's Geomagnetism"

Lesson 1.5:
Investigating Magnetic Field Lines

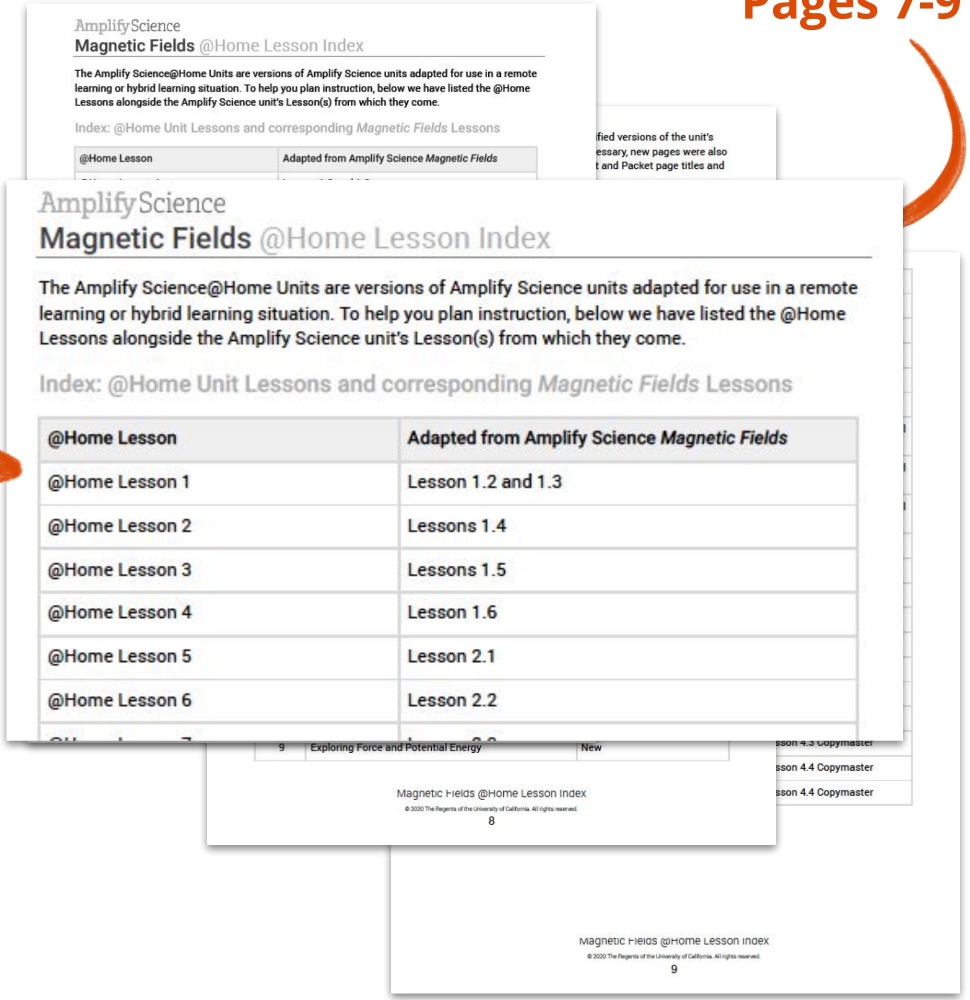
Lesson 1.6:
Analyzing Field Line Data

@Home Unit Lesson Index

This resource correlates lessons from the Standard Curriculum with @Home Unit Lessons.

It also lists the @Home Unit Student Sheets with information about where they came from (i.e. Student Investigation Notebook, copymaster, or new for the @Home Unit)

Pages 7-9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Magnetic Fields @Home Lesson Index

The Amplify Science@Home Units are versions of Amplify Science units adapted for use in a remote learning or hybrid learning situation. To help you plan instruction, below we have listed the @Home Lessons alongside the Amplify Science unit's Lesson(s) from which they come.

Index: @Home Unit Lessons and corresponding *Magnetic Fields* Lessons

@Home Lesson	Adapted from Amplify Science *Magnetic Fields*
@Home Lesson 1	Lesson 1.2 and 1.3
@Home Lesson 2	Lessons 1.4
@Home Lesson 3	Lessons 1.5
@Home Lesson 4	Lesson 1.6
@Home Lesson 5	Lesson 2.1
@Home Lesson 6	Lesson 2.2

@Home Lesson 1

Adapted from: Amplify Science *Magnetic Fields* Lessons1.2 and 1.3

Key Activities

- **Introducing the unit:** Students are introduced to the problem that frames the unit; surprising results from test launches of a magnetically-launched spacecraft.
- **Do:** Students are introduced to the *Magnetic Fields* Simulation and use it to gather evidence about how magnets can move objects.

Ideas for synchronous or in-person instruction

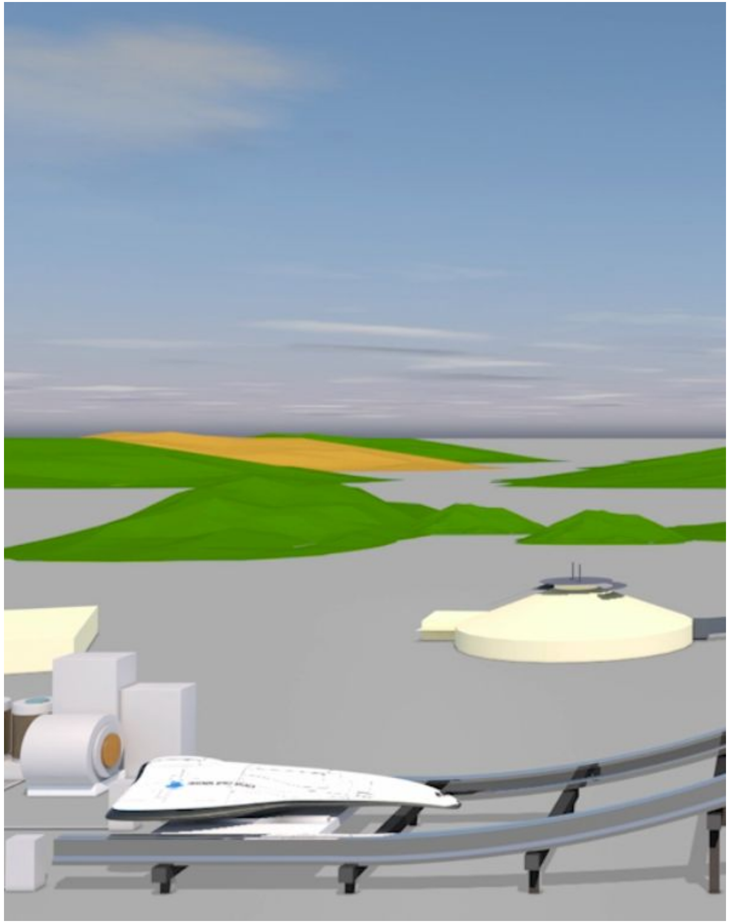
While meeting, hold a class discussion of the surprising launch results during the first activity, and invite students to help generate “Magnet Rules” after the Sim activity. If meeting in person, provide magnets and other materials for students to explore after the Sim activity.

Magnetic Fields

@Home Lesson 1

AmplifyScience

Today, we will begin a new unit called ***Magnetic Fields*.** In this unit, you will be acting as student physicists to determine why a spacecraft did not launch at the expected speed.



Now you'll watch a video that will introduce you to the problem.

Note: all videos in this @Home Unit can be viewed on a smartphone, or any other connected device.

As you watch the video, think about these questions, which you'll then discuss with a partner:

- How do you think the launcher can make the spacecraft move without touching it?
- Why do you think the spacecraft's speed was different on the Monday, Tuesday, and Wednesday launches?

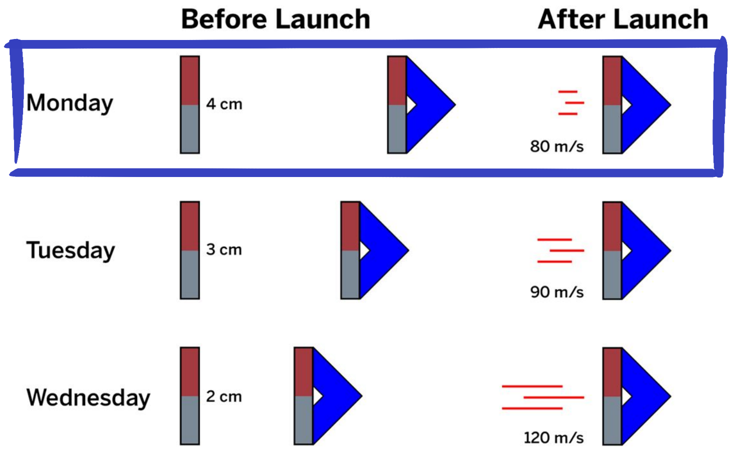
Using the print version? Watch the video here: tinyurl.com/AMPMF-022

In this lesson and many others in the *Magnetic Fields* @Home unit you will need to talk with a **partner. Check with your teacher** about how you will work with partners in this @Home Unit.

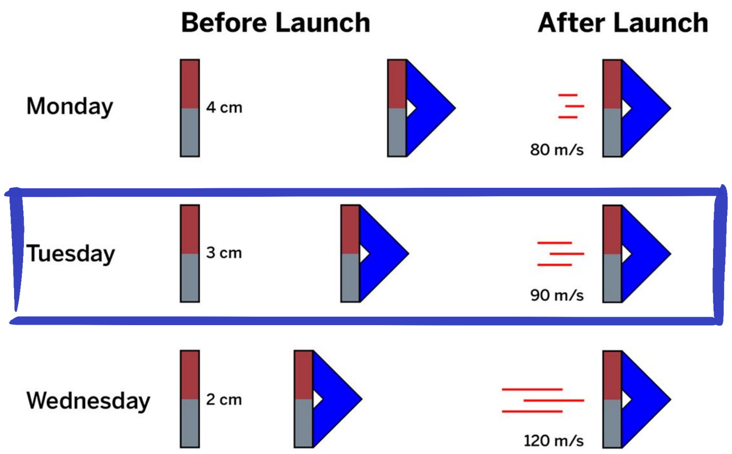
Your partner could be a classmate on the phone or someone at home with you.

How do you think the launcher can make the spacecraft move without touching it?

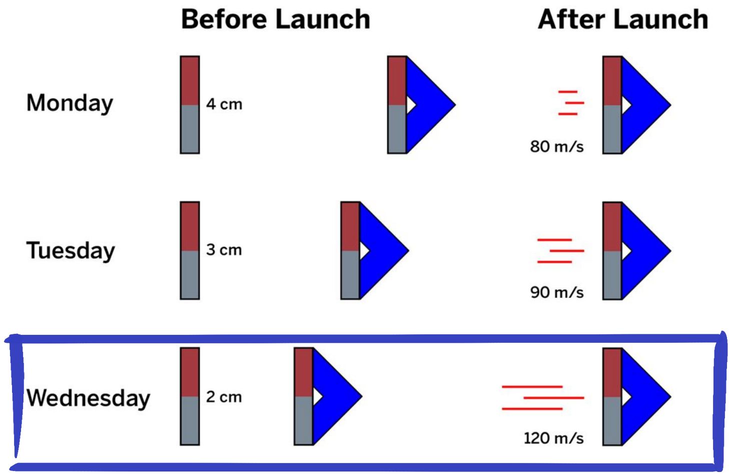
Why do you think the spacecraft's speed was different on the Monday, Tuesday, and Wednesday launches?



The USA wants the model spacecraft to reach a **target speed** of 100 meters per second (m/s). On Monday, the launch was too slow.
It went 80 m/s.



On Tuesday, the model spacecraft was moved 1 centimeter (cm) closer to the launcher. This time the spacecraft traveled 90 m/s. This was 10 m/s faster than Monday, but **still not fast enough.**



On Wednesday, the scientists moved the spacecraft closer by another 1 cm, thinking it would go another 10 m/s faster. But its speed was 120 m/s, which is 30 m/s **faster**!

Research Question: Why did the spacecraft go so much faster than expected on Wednesday?

Claim 1: The magnets were misaligned on Tuesday.

Claim 2: Much more energy was in the launcher system on Wednesday than on Tuesday.

Claim 3: The magnetic force was much stronger on Wednesday than on Tuesday.

This is the **Research Question** we'll investigate, and these are the **claims** that the USA scientists would like your help evaluating.

Over the next few lessons we'll gather evidence about this question:

Chapter 1 Question

How can the launcher make the model spacecraft move without touching it?

As we investigate the spacecraft launch, we'll learn about magnets in general.

Unit Question

Why do magnets move objects in different ways?

Today, we will investigate this question:

Investigation Question:
How do magnets move objects?

Adapted from: Amplify Science *Magnetic Fields* Lessons1.2 and 1.3

Key Activities

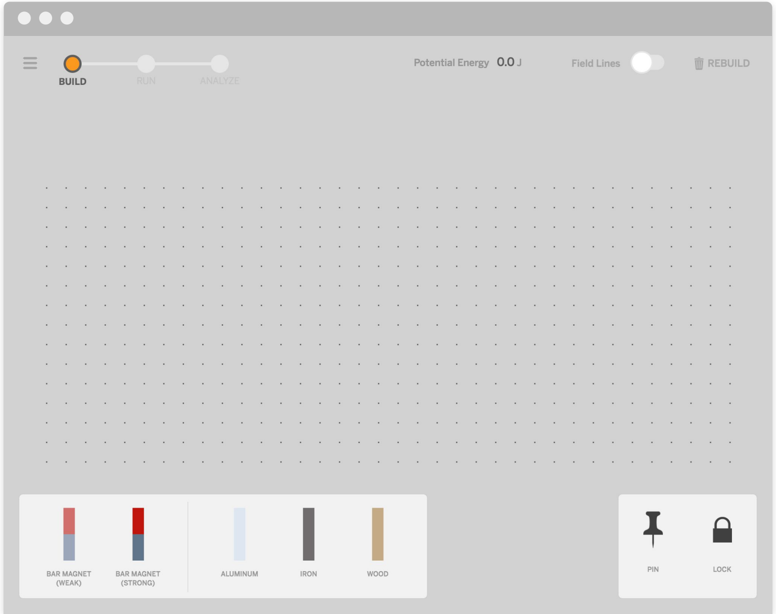
- **Introducing the unit:** Students are introduced to the problem that frames the unit; surprising results from test launches of a magnetically-launched spacecraft.
- **Do:** Students are introduced to the *Magnetic Fields* Simulation and use it to gather evidence about how magnets can move objects.

Ideas for synchronous or in-person instruction

While meeting, hold a class discussion of the surprising launch results during the first activity, and invite students to help generate "Magnet Rules" after the Sim activity. If meeting in person, provide magnets and other materials for students to explore after the Sim activity.

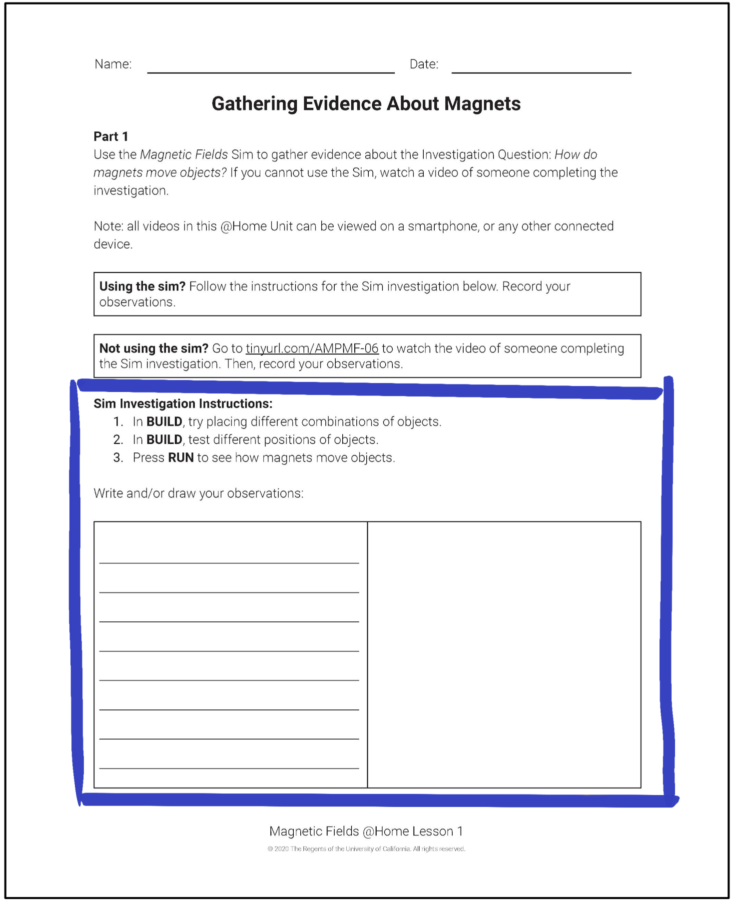
In this lesson you will use the *Magnetic Fields* Simulation or watch a video of a Sim investigation.

Check with your teacher about how you will access Sims and other digital tools in this @Home Unit.



Let’s go over some of the **features** of the Sim.

Using the print version? Watch the video here: tinyurl.com/AMPMF-03


Name: ______________________ Date: ________________

Gathering Evidence About Magnets

Part 1
Use the *Magnetic Fields* Sim to gather evidence about the Investigation Question: *How do magnets move objects?* If you cannot use the Sim, watch a video of someone completing the investigation.

Note: all videos in this @Home Unit can be viewed on a smartphone, or any other connected device.

Using the sim? Follow the instructions for the Sim investigation below. Record your observations.

Not using the sim? Go to tinyurl.com/AMPMF-06 to watch the video of someone completing the Sim investigation. Then, record your observations.

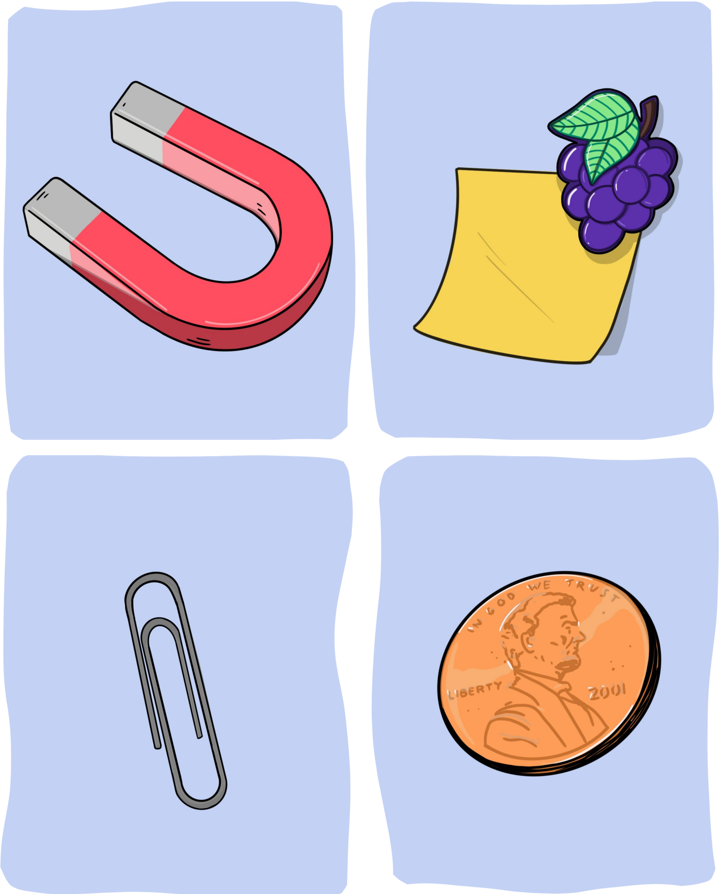
Sim Investigation Instructions:
1. In **BUILD**, try placing different combinations of objects.
2. In **BUILD**, test different positions of objects.
3. Press **RUN** to see how magnets move objects.

Write and/or draw your observations:

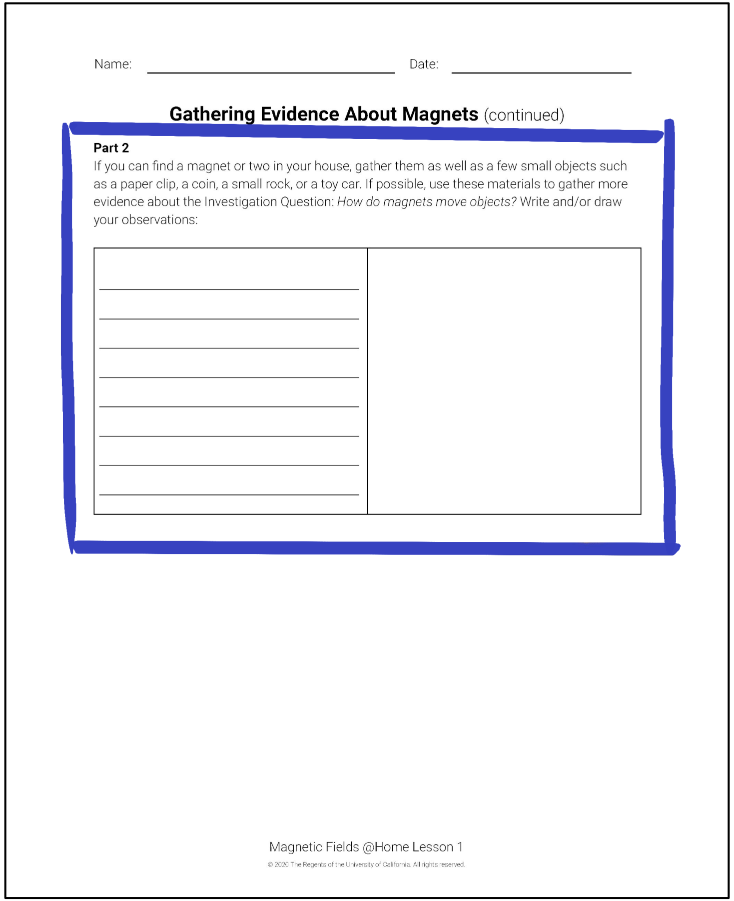
Magnetic Fields @Home Lesson 1

Find the **Gathering Evidence About Magnets** page. Use the Sim or watch a video of this Sim investigation.

Gather evidence about the Investigation Question by completing **Part 1**.



If you can **find a magnet** or two in your house, gather them as well as a few small objects such as a paper clip, a coin, a small rock, or a toy car.



Name: ______________________ Date: ________________

Gathering Evidence About Magnets (continued)

Part 2
If you can find a magnet or two in your house, gather them as well as a few small objects such as a paper clip, a coin, a small rock, or a toy car. If possible, use these materials to gather more evidence about the Investigation Question: *How do magnets move objects?* Write and/or draw your observations:

Magnetic Fields @Home Lesson 1

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Go back to the **Gathering Evidence About Magnets** page.

If you have the materials listed, complete Part 2. If not, skip this. Follow the safety guidelines on the next slide.

Safety Guidelines for Science Investigations

1. Follow instructions.
2. Don’t taste things.
3. Smell substances like a chemist.
4. Protect your eyes.
5. Protect your hands.
6. Keep your hands away from your face.
7. Tell your teacher if you have allergies.
8. Be calm and careful.
9. Report all spills, accidents, and injuries to your teacher or an adult at home.
10. Avoid anything that could cause a burn.
11. Wash your hands after class.

Refer to your observations and use the following sentence starters to **discuss** how magnets move other objects.

- Magnets always . . .
- Magnets never . . .
- Magnets sometimes . . .

Was it possible to make a magnet move another object (or another magnet) **without touching it**?

What kinds of things could the magnet make another object or magnet do **without touching it**?

This is the end of the partner work in this lesson.

Here is a word we can use to describe magnets moving objects.

attract

to pull objects toward one another

Here is another word we can use to describe magnets moving objects.

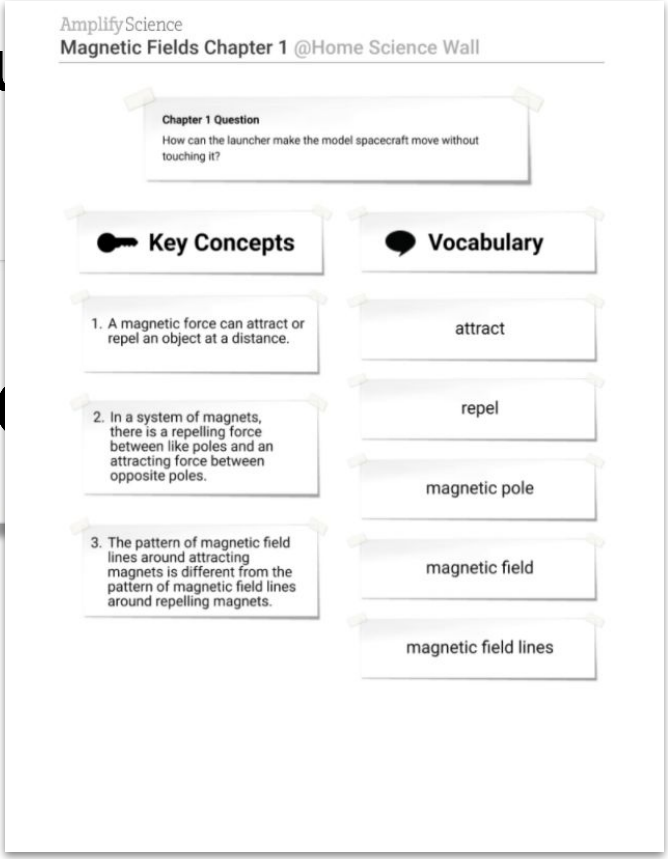
repel

to push objects away from each other

Here is another word to help u magnets.

magnetic p

one of the two opposite ends


Amplify Science

Magnetic Fields Chapter 1 @Home Science Wall

Chapter 1 Question

How can the launcher make the model spacecraft move without touching it?

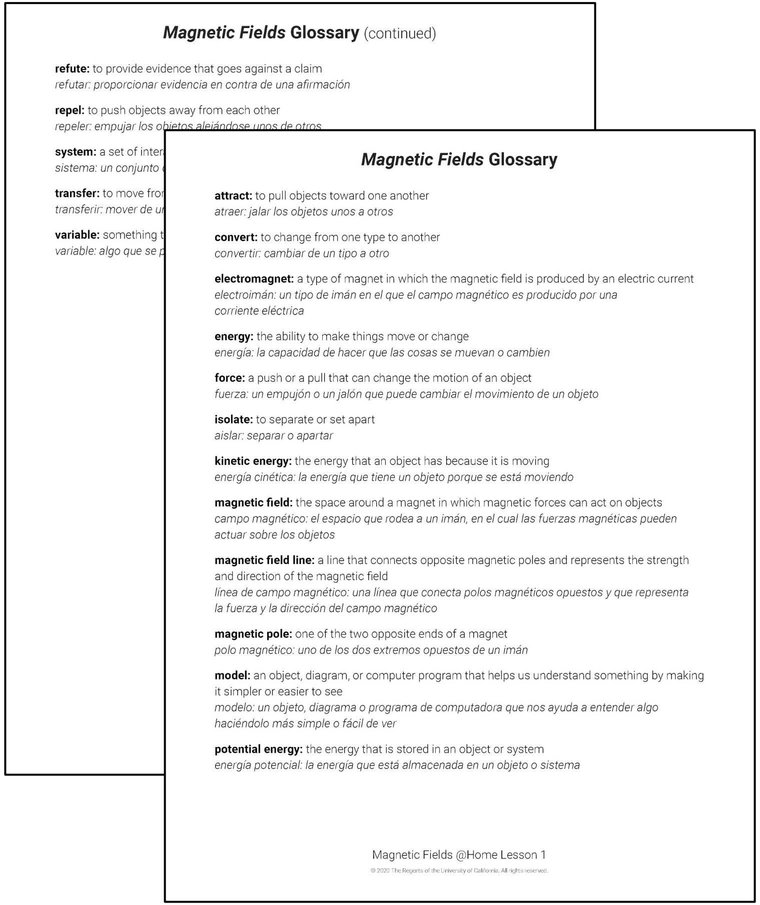
Key Concepts

1. A magnetic force can attract or repel an object at a distance.
2. In a system of magnets, there is a repelling force between like poles and an attracting force between opposite poles.
3. The pattern of magnetic field lines around attracting magnets is different from the pattern of magnetic field lines around repelling magnets.

Vocabulary

- attract
- repel
- magnetic pole
- magnetic field
- magnetic field lines

In this lesson and throughout the unit you will need to **access different pages** such as the Glossary on the next slide. **Check with your teacher** about how you will access materials and complete and submit work in this @Home Unit.



***Magnetic Fields* Glossary** (continued)

refute: to provide evidence that goes against a claim
refutar: proporcionar evidencia en contra de una afirmación

repel: to push objects away from each other
repeler: empujar los objetos alejándose unos de otros

system: a set of inter
sistema: un conjunto

transfer: to move fro
transferir: mover de u

variable: something t
variable: algo que se p

***Magnetic Fields* Glossary**

attract: to pull objects toward one another
atraer: jalar los objetos unos a otros

convert: to change from one type to another
convertir: cambiar de un tipo a otro

electromagnet: a type of magnet in which the magnetic field is produced by an electric current
electroimán: un tipo de imán en el que el campo magnético es producido por una corriente eléctrica

energy: the ability to make things move or change
energía: la capacidad de hacer que las cosas se muevan o cambien

force: a push or a pull that can change the motion of an object
fuerza: un empujón o un jalón que puede cambiar el movimiento de un objeto

isolate: to separate or set apart
aislar: separar o apartar

kinetic energy: the energy that an object has because it is moving
energía cinética: la energía que tiene un objeto porque se está moviendo

magnetic field: the space around a magnet in which magnetic forces can act on objects
campo magnético: el espacio que rodea a un imán, en el cual las fuerzas magnéticas pueden actuar sobre los objetos

magnetic field line: a line that connects opposite magnetic poles and represents the strength and direction of the magnetic field
línea de campo magnético: una línea que conecta polos magnéticos opuestos y que representa la fuerza y la dirección del campo magnético

magnetic pole: one of the two opposite ends of a magnet
polo magnético: uno de los dos extremos opuestos de un imán

model: an object, diagram, or computer program that helps us understand something by making it simpler or easier to see
modelo: un objeto, diagrama o programa de computadora que nos ayuda a entender algo haciéndolo más simple o fácil de ver

potential energy: the energy that is stored in an object or system
energía potencial: la energía que está almacenada en un objeto o sistema

Magnetic Fields @Home Lesson 1

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Throughout the year, you can look up vocabulary words in the **glossary** to help you understand what they mean. You can find this in your student pages or in the Amplify Library.

***Magnetic Fields* Glossary** pages or Amplify Library

Rules About Magnets

Magnets always repel when like poles are next to each other and attract when opposite poles are next to each other.

Magnets always move other magnets.

Magnets never move wood and other nonmetals.

Magnets sometimes attract and sometimes repel.

Magnets sometimes move metals.

Here are some **rules** we can write based on our observations of magnets.

We can summarize what we've figured out about magnets with this **key concept**:

1. **A magnetic force can attract or repel an object at a distance.**

End of @Home Lesson

THE LAWRENCE HALL OF SCIENCE
UNIVERSITY OF CALIFORNIA, BERKELEY

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@Home Lesson 1

Adapted from: Amplify Science *Magnetic Fields* Lessons1.2 and 1.3

Key Activities

- **Introducing the unit:** Students are introduced to the problem that frames the unit; surprising results from test launches of a magnetically-launched spacecraft.
- **Do:** Students are introduced to the *Magnetic Fields* Simulation and use it to gather evidence about how magnets can move objects.

Ideas for synchronous or in-person instruction

While meeting, hold a class discussion of the surprising launch results during the first activity, and invite students to help generate "Magnet Rules" after the Sim activity. If meeting in person, provide magnets and other materials for students to explore after the Sim activity.

Suggestions for Online Synchronous Time

page 14

Online synchronous time

Online discussions: It's worthwhile to establish norms and routines for online discussions in science to ensure equity of voice, turn-taking, etc.

Digital tool demonstrations: You can share your screen and demonstrate, or invite your students to share their screen and think-aloud as they use a Simulation or other digital tool.

Interactive read-alouds: Screen share a digital book or article, and pause to ask questions and invite discussion as you would in the classroom.

Shared Writing: This is a great opportunity for a collaborative document that all your students can contribute to.

Co-constructed class charts: You can create digital charts, or create physical charts in your home with student input.

Reflection: Teaching @Home Lesson 1

How would you teach this lesson?

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Multi-day planning, including planning for differentiation and evidence of student work

page 10

Day @Home Lesson 1

Minutes for science: 15 min.

Instructional format:
- [x] Asynchronous
- [ ] Synchronous

Lesson or part of lesson:
Introducing the unit (slides 1-13)

Mode of instruction:
- [x] Preview
- [ ] Review
- [ ] Teach full lesson live
- [ ] Teach using synchronous suggestions
- [x] Students work independently using:
  - [ ] Printed @Home Slides
  - [x] Digital @Home Slides
  - [ ] @Home Videos

Students will...	Teacher will...
Watch the video about the spacecraft launch. Jot down initial ideas about why the launch speeds were different on different days (Partner talk prompt Slide 7)	Assign slides 1-13 in Schoology. Modify slide 7 to direct students to jot down their ideas about the spacecraft problem to share when the class meets together. Cut slide 6 (partner talk instruction)

Day

Minutes for science: ____________

Instructional format:
- [ ] Asynchronous
- [x] Synchronous

Lesson or part of lesson:

Mode of instruction:
- [ ] Preview
- [ ] Review
- [ ] Teach full lesson live
- [ ] Teach using synchronous suggestions
- [ ] Students work independently using:
  - [ ] Printed @Home Slides
  - [ ] Digital @Home Slides
  - [ ] @Home Videos

Students will...	Teacher will...

Multi-day planning, including planning for differentiation and evidence of student work

Day @Home Lesson 1

Minutes for science: 15 min.

Instructional format:
- [x] Asynchronous
- [ ] Synchronous

Lesson or part of lesson:
Introducing [illegible] (slides 1-10)

Mode of instruction:
- [x] Preview
- [ ] Review
- [ ] Teach full lesson live
- [ ] Teach using synchronous suggestions
- [x] Students work independently using:
  - [ ] Printed @Home Slides
  - [x] Digital @Home Slides
  - [ ] @Home Videos

Students will...	Teacher will...
Watch the video about the spacecraft launch. Jot down initial ideas about why the launch speeds were different on different days (Partner talk prompt Slide 7)	Assign slides 1-13 in Schoology. Modify slide 7 to direct students to jot down their ideas about the spacecraft problem to share when the class meets together. Cut slide 6 (partner talk instruction)

Minutes for science: 30 min

Instructional format:
- [ ] Asynchronous
- [x] Synchronous

Lesson or part of lesson:
"Do" activity (slides 14-32)

Mode of instruction:
- [ ] Preview
- [ ] Review
- [ ] Teach full lesson live
- [x] Teach using synchronous suggestions
- [ ] Students work independently using:
  - [ ] Printed @Home Slides
  - [ ] Digital @Home Slides
  - [ ] @Home Videos

Students will...	Teacher will...
Discuss the spacecraft launch as a full class. Investigate in the Sim & record observations, then discuss w/ a partner. Investigate using magnets or watch teacher demo. Magnet rules Jamboard.	Modify slides 14-32. Begin with discussion about spacecraft launch. Model accessing the Sim. Assign partners for discussion. Demo magnet investigation. Lead Magnet Rules discussion using Jamboard.

page 10

Amplify.

Breakout groups

page 11

Discussion prompts

Planning:

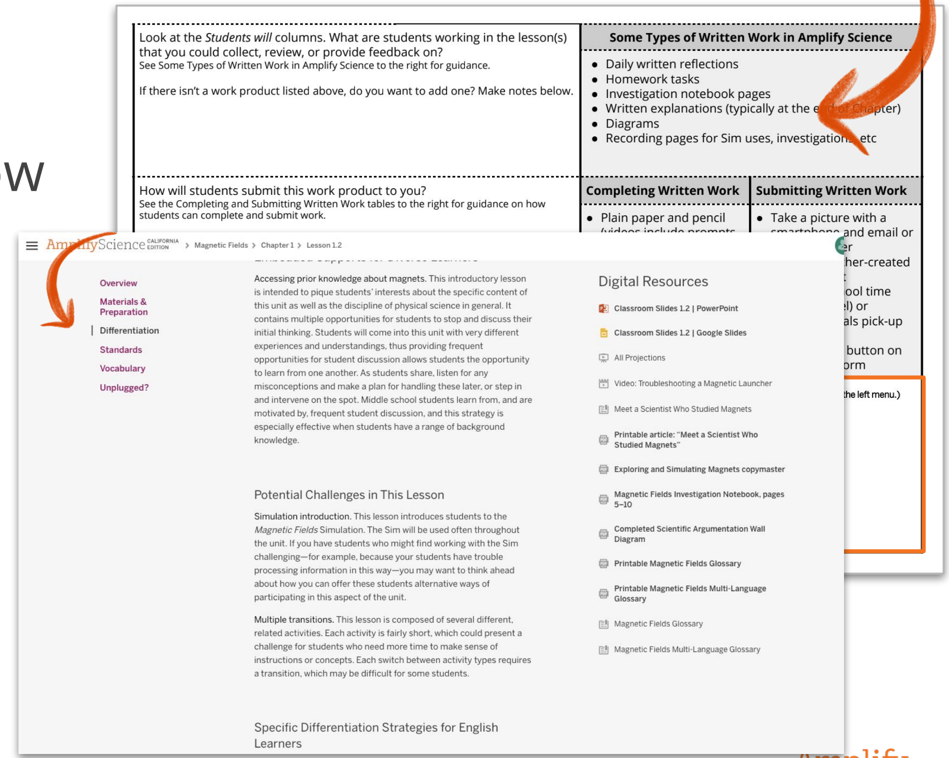
- Share additional ideas for how you plan to lead Lesson 1

Student work:

- Discuss how you can collect evidence of student work

Differentiation:

- Consider how you might differentiate this lesson



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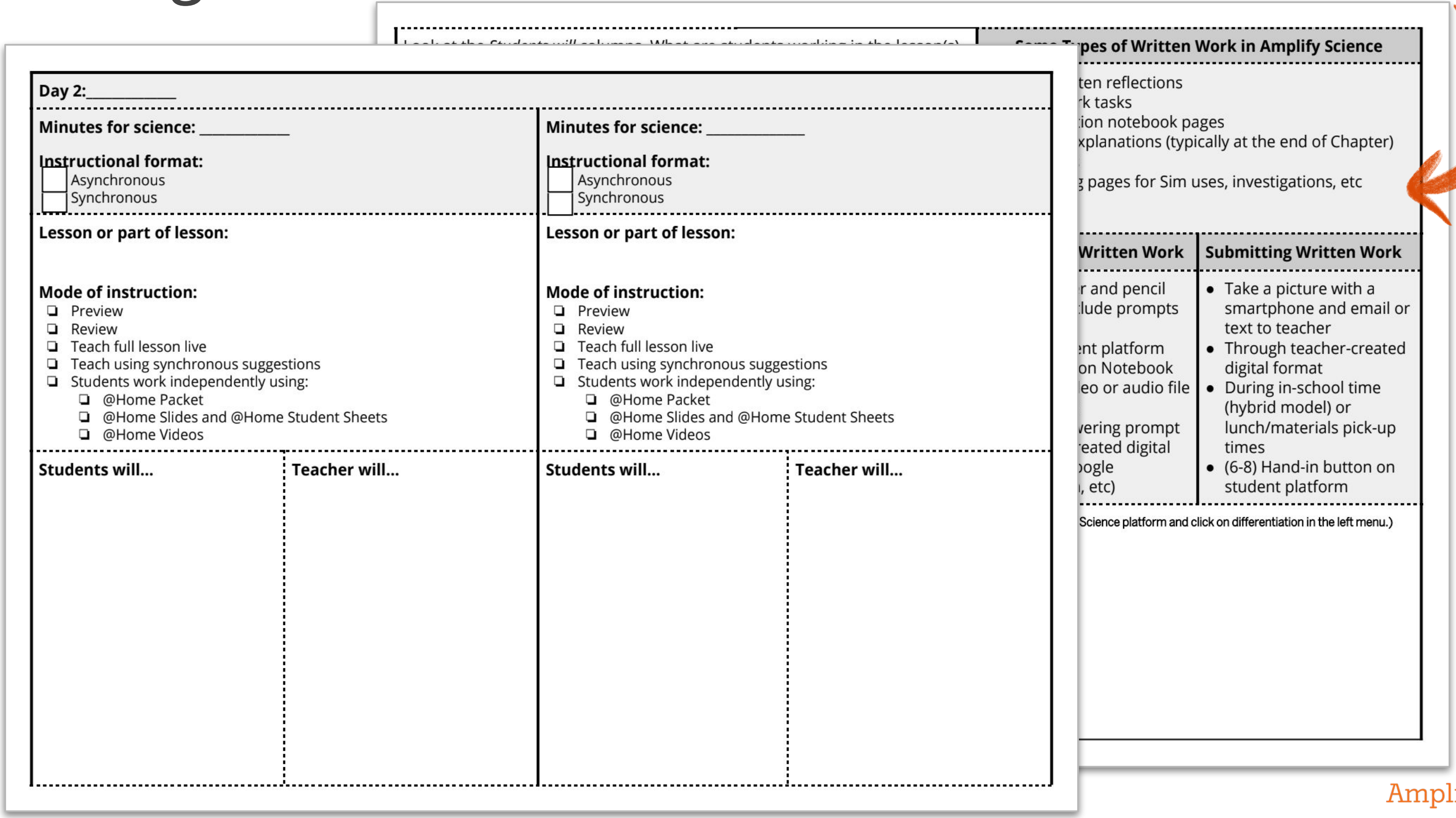
Look at the *Students will* columns. What are students working in the lesson(s) that you could collect, review, or provide feedback on? See Some Types of Written Work in Amplify Science to the right for guidance. If there isn't a work product listed above, do you want to add one? Make notes below.	**Some Types of Written Work in Amplify Science** • Daily written reflections • Homework tasks • Investigation notebook pages • Written explanations (typically at the end of Chapter) • Diagrams • Recording pages for Sim uses, investigations, etc
How will students submit this work product to you? See the Completing and Submitting Written Work tables to the right for guidance on how students can complete and submit work.	**Completing Written Work** • Plain paper and pencil (videos include prompts for setup) • (6-8) Student platform • Investigation Notebook • Record video or audio file describing work/answering prompt • Teacher-created digital format (Google Classroom, etc) **Submitting Written Work** • Take a picture with a smartphone and email or text to teacher • Through teacher-created digital format • During in-school time (hybrid model) or lunch/materials pick-up times • (6-8) Hand-in button on student platform

How will you differentiate this lesson for diverse learners? (Navigate to the lesson level on the standard Amplify Science platform and click on differentiation in the left menu.)

Planning Resource

pages 12-13



Some Types of Written Work in Amplify Science

ten reflections
k tasks
ion notebook pages
xplanations (typically at the end of Chapter)
g pages for Sim uses, investigations, etc

Written Work	Submitting Written Work
r and pencil lude prompts nt platform on Notebook eo or audio file ering prompt eated digital oogle , etc)	• Take a picture with a smartphone and email or text to teacher • Through teacher-created digital format • During in-school time (hybrid model) or lunch/materials pick-up times • (6-8) Hand-in button on student platform

Science platform and click on differentiation in the left menu.)

Day 2:___________

Minutes for science: ___________	**Minutes for science:** ___________
Instructional format: ☐ Asynchronous ☐ Synchronous	**Instructional format:** ☐ Asynchronous ☐ Synchronous

Lesson or part of lesson:
 	
Mode of instruction:
❏ Preview
❏ Review
❏ Teach full lesson live
❏ Teach using synchronous suggestions
❏ Students work independently using:
    ❏ @Home Packet
    ❏ @Home Slides and @Home Student Sheets
    ❏ @Home Videos
	Lesson or part of lesson:
	
	Mode of instruction:
	❏ Preview
	❏ Review
	❏ Teach full lesson live
	❏ Teach using synchronous suggestions
	❏ Students work independently using:
	    ❏ @Home Packet
	    ❏ @Home Slides and @Home Student Sheets
	    ❏ @Home Videos

Students will...	**Teacher will...**	**Students will...**	**Teacher will...**

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Questions?

Plan for the day

- Framing the day
  - Welcome
  - Instructional Materials
- Unit Internalization
- Planning to teach
  - Collecting evidence of student learning to meet diverse learner needs
- **Reflection and closing**

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During this workshop did we meet our objectives?

- Were you able to internalize your upcoming unit?
- Do you know how to plan for **collecting evidence of student learning** in order to make instructional decisions to **support diverse learner needs**?
- Do you have the resources you need to develop a multi-day plan for implementing Amplify Science within your class schedule and instructional format?

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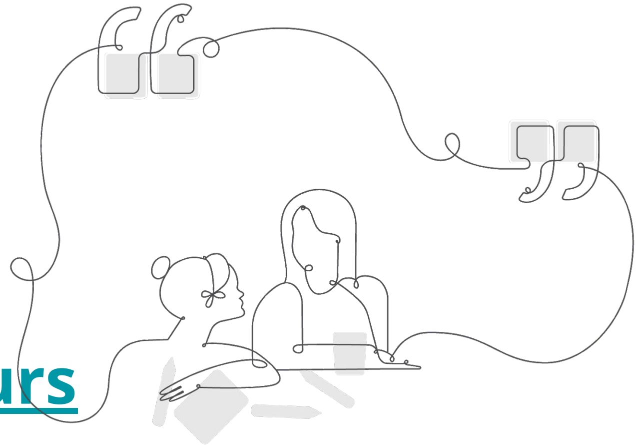
Upcoming LAUSD Office Hours

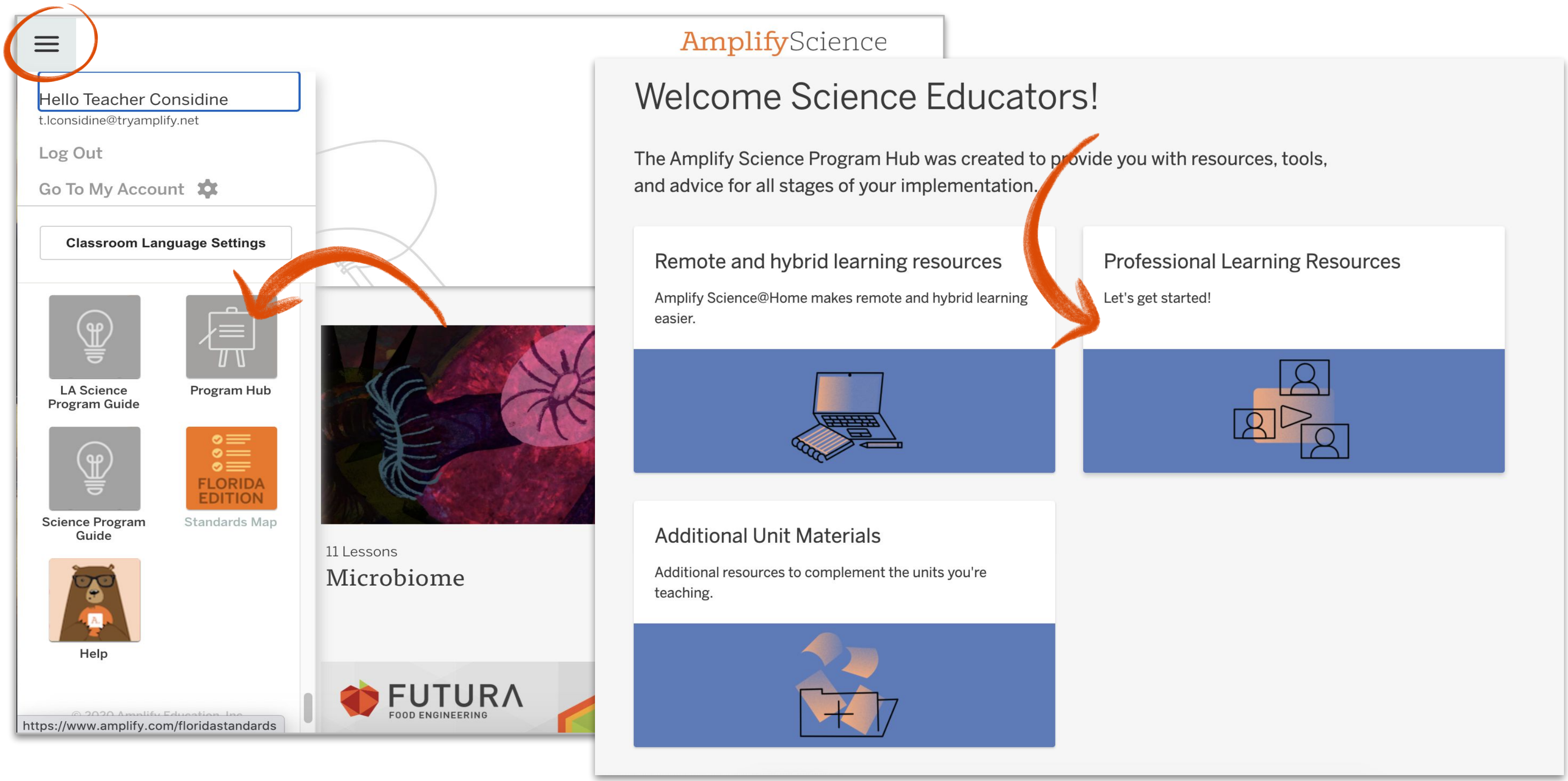
Monthly through January

- Thursday, 1/14 (3-4pm)



http://bit.ly/LAUSDMSOfficeHours

Program Hub: Self Study Resources



Back to school national webinar series

Topics included:

- Remote and hybrid learning support
- Navigation support
- What's new for 2020-2021
- Planning support
- Curriculum overview

bit.ly/BTSwebinars

Additional Amplify resources

Caregivers site

Provide your students' families information about Amplify Science and what students are learning

amplify.com/amplify-science-family-resource-intro/

Additional Amplify resources

Program Guide

Glean additional insight into the program’s structure, intent, philosophies, supports, and flexibility.

http://amplify.com/science/california/review

Amplify Help

Find lots of advice and answers from the Amplify team.

my.amplify.com/help

Additional Amplify Support

Customer Care

Seek information specific to enrollment and rosters, technical support, materials and kits, and teaching support, weekdays 7AM-7PM EST.

scihelp@amplify.com

800-823-1969

Amplify Chat

When contacting the customer care team:

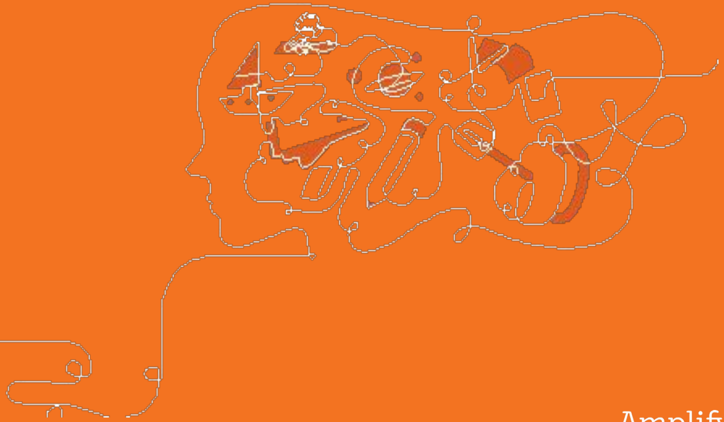
- Identify yourself as an Amplify Science user.
- Note the unit you are teaching.
- Note the type of device you are using (Chromebook, iPad, Windows, laptop).
- Note the web browser you are using (Chrome or Safari).
- Include a screenshot of the problem, if possible.
- Copy your district or site IT contact on emails.

Please provide us feedback!

URL: **https://www.surveymonkey.com/r/AmplifyLAUSDMS**

Presenter names :

Date: xx



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