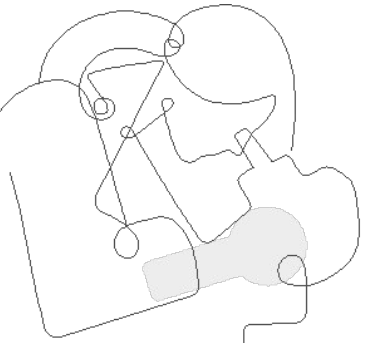
Amplify Science

The Assessment System

Grade K, Unit 2: Pushes and Pulls

Part 3

Strengthen workshop



School/District Name
Date
Presented by Your Name

PLPG CERTIFIED PROVIDER

Amplify's Purpose Statement

Dear teachers,

You do a job that is nearly impossible and **utterly essential.**

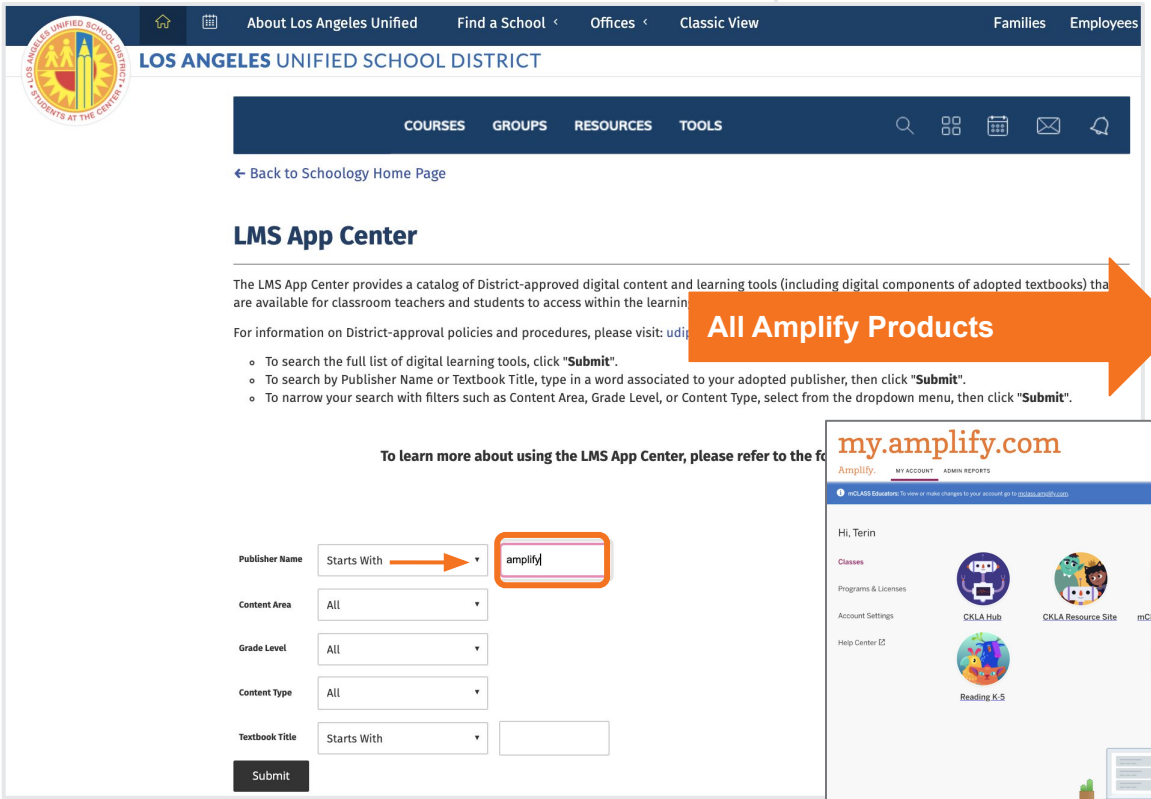
We are in your corner – extending your reach, saving you time, and enhancing your understanding of each student.

Thank you for working with us to craft rigorous and riveting learning experiences for your classroom.

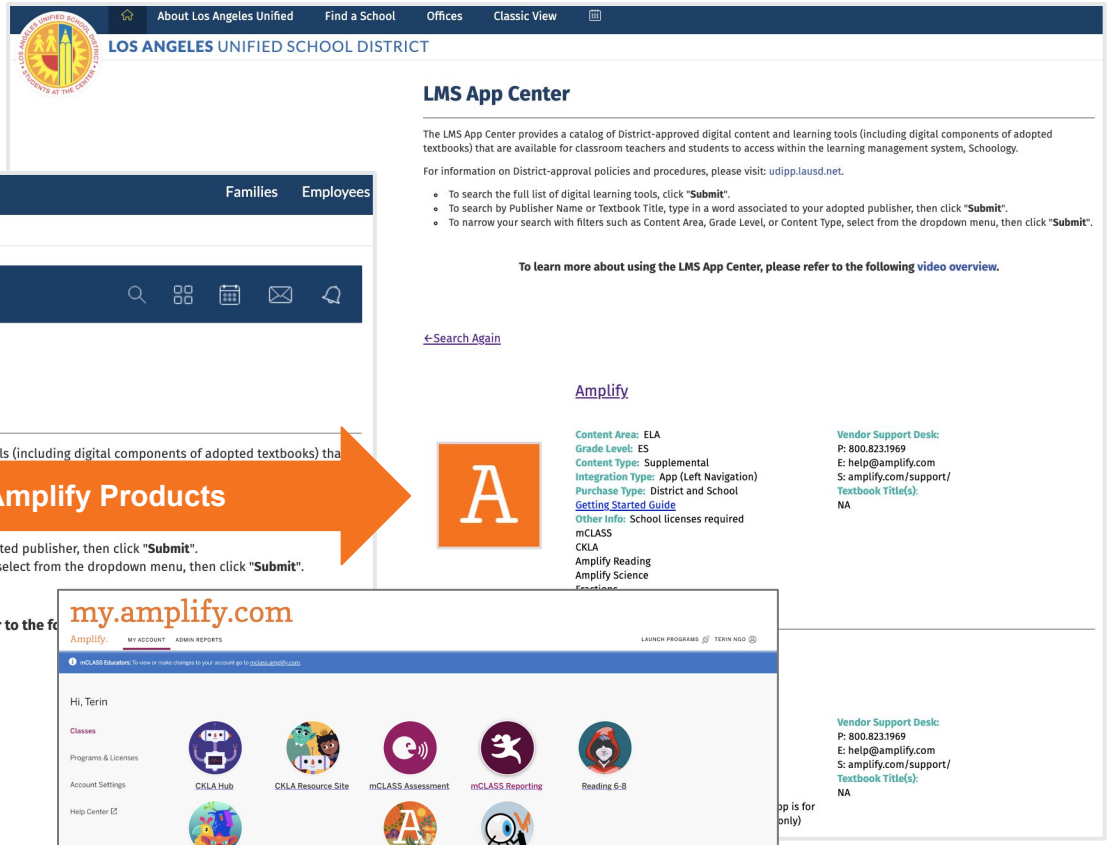
We share your goal of **inspiring all students to think deeply, creatively, and for themselves.**

Sincerely,
Amplify

Schoology



All Amplify Products



Join Amplify Science Schoology Group

To join Amplify Science Schoology ES Group: W4PK-W466-63F5B

Navigation Temperature Check

Rate yourself on your comfort level accessing Amplify Science materials and navigating a digital curriculum.

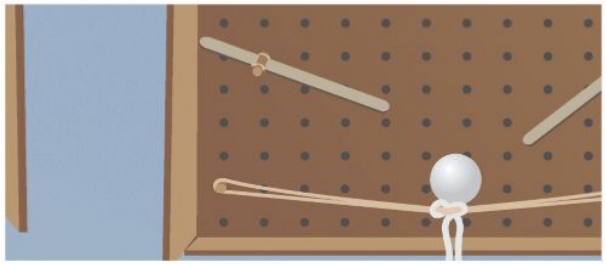
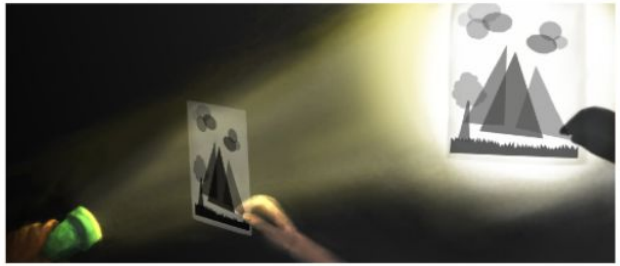
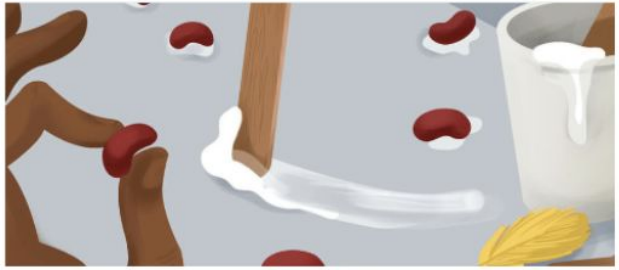
1 = Extremely Uncomfortable

2 = Uncomfortable

3 = Mild

4 = Comfortable

5 = Extremely Comfortable

Plan for the day

- Introduction
- Assessment System
- Progress Build
- Assessments
- Model Lesson
- Planning
- Closing

Overarching goals

- Describe the structure and purpose of the Amplify Science Assessment System
- Plan for the strategic use of assessment resources to analyze and respond to student work

Norms: Establishing a culture of learners

- **Take risks:** Ask any questions, provide any answers.
- **Participate:** Share your thinking, participate in discussion and reflection.
- **Be fully present:** Unplug and immerse yourself in the moment.
- **Physical needs:** Stand up, get water, take breaks.

Opening reflection

Why do we assess our students?

What is **challenging** about assessing our students?

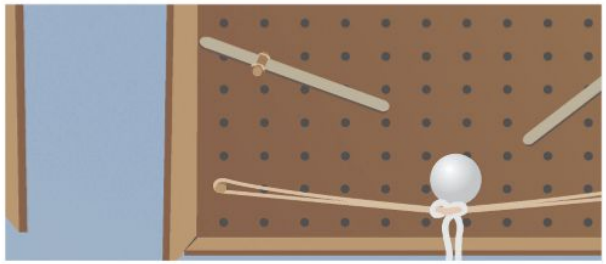
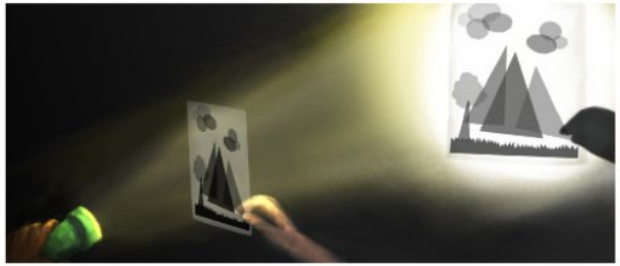
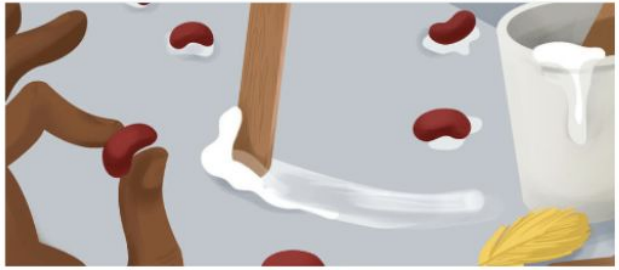
Participant Notebook

https://bit.ly/3h8beEs

Opening Reflection: Assessment

Why do we assess our students?

Why do we assess our students?

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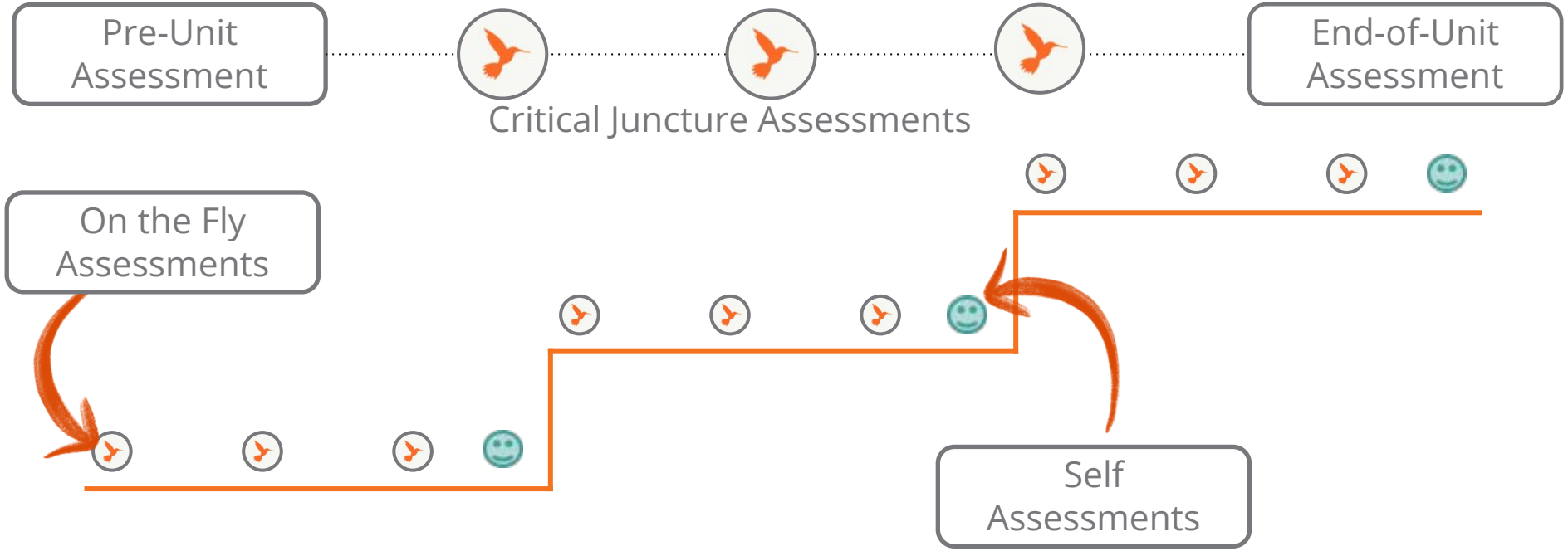
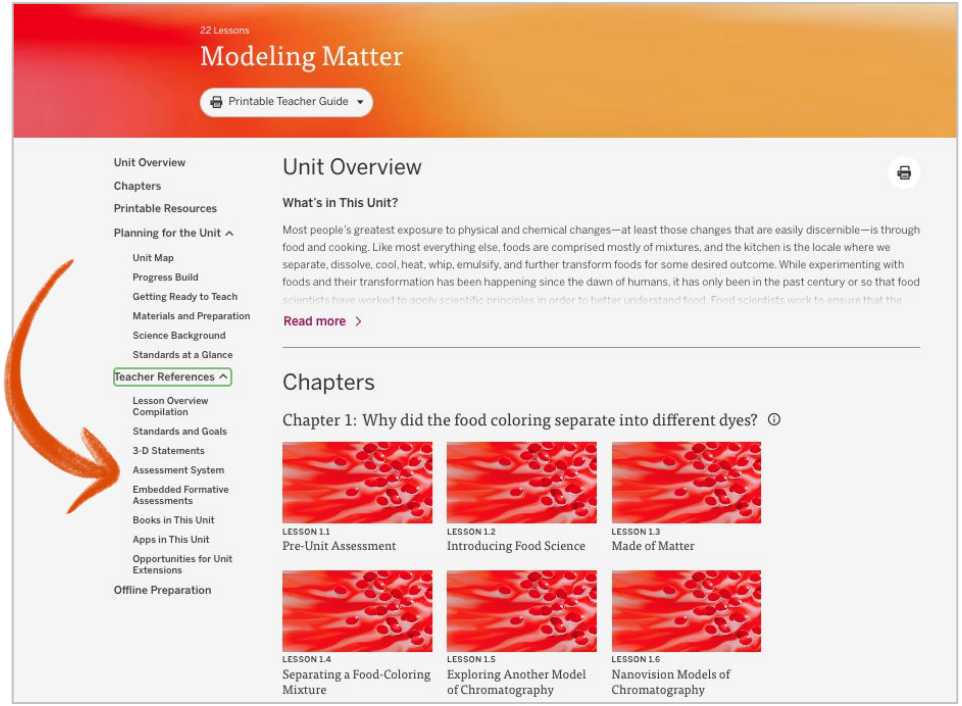
K-5 Assessment System

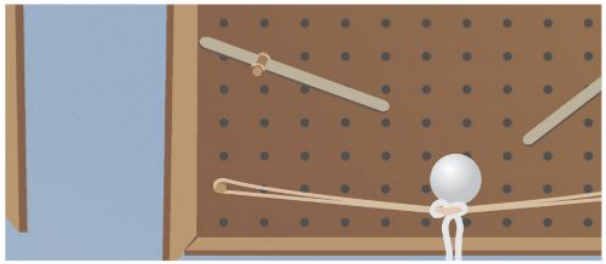
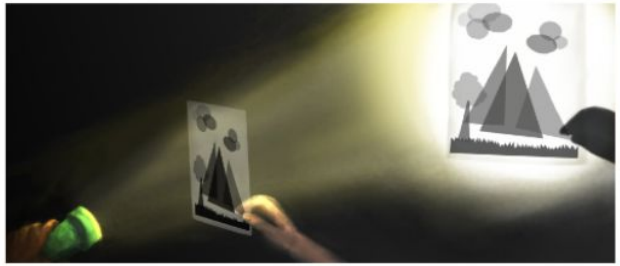
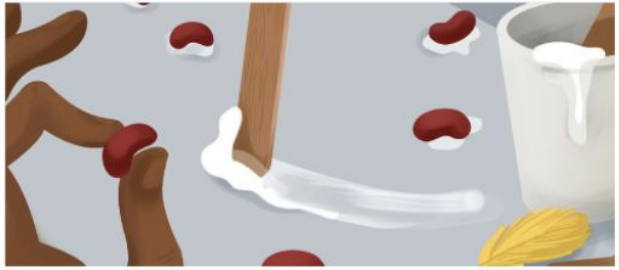


Assessment System Document

Modeling Matters



Questions?

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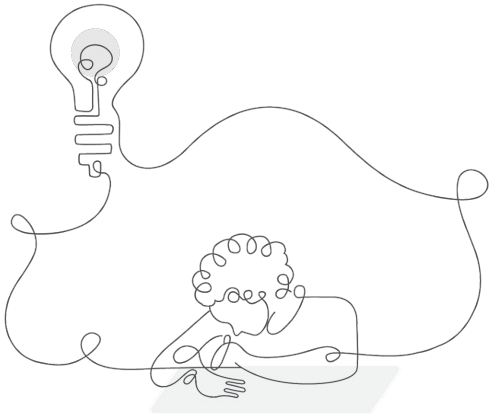
Reviewing the unit phenomenon

Modeling Matter

Amplify Science units are designed around complex phenomena that drive student learning through the unit.



Pushes and Pulls

Problem: How can we create a pinball machine for our class?

Role: Pinball Engineers

Students use their new understanding of the phenomena of force and motion to identify pushes and pulls more broadly in their lives.

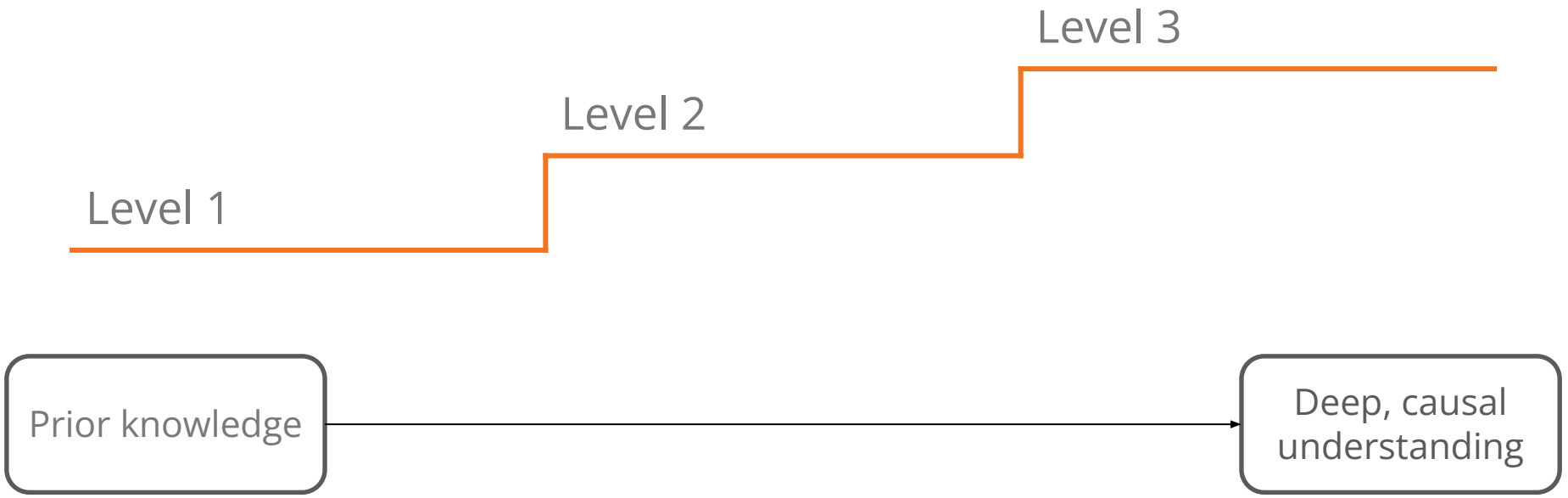
Pushes and Pulls

Explaining the phenomenon: Science Concepts

What **science concepts** do you think students need to understand in order to **explain the phenomenon?**

Progress Build

A unit-specific learning progression

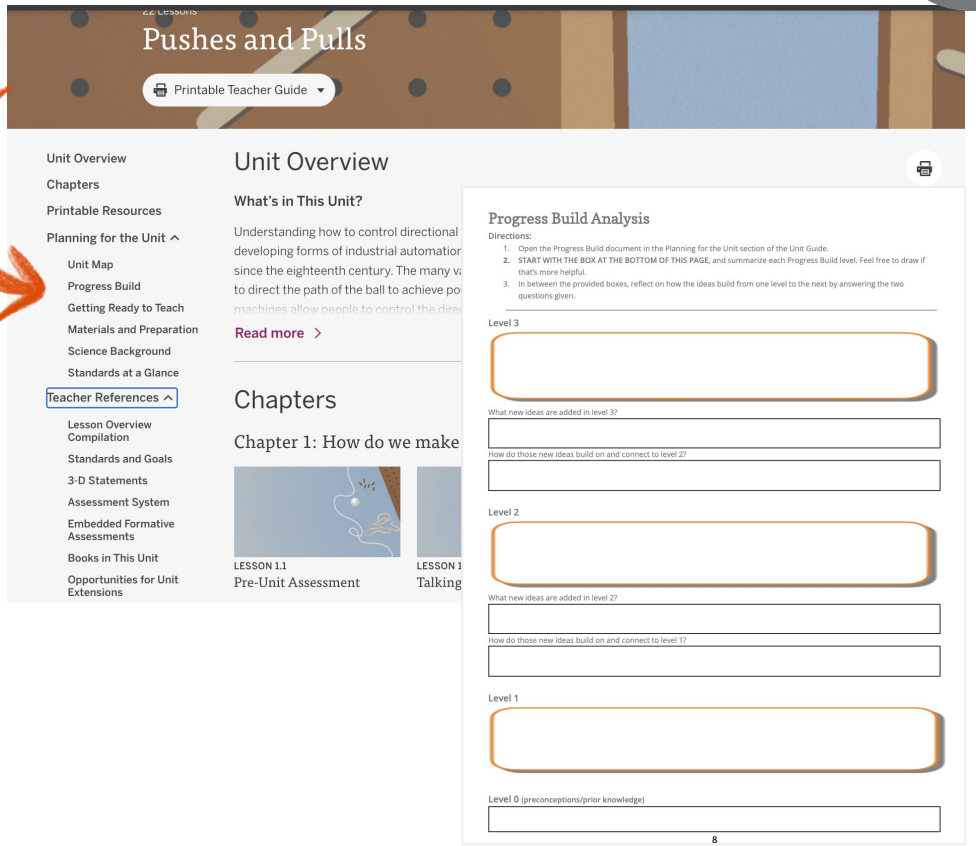


Progress Build analysis

Work time

Read and analyze your unit's Progress Build.

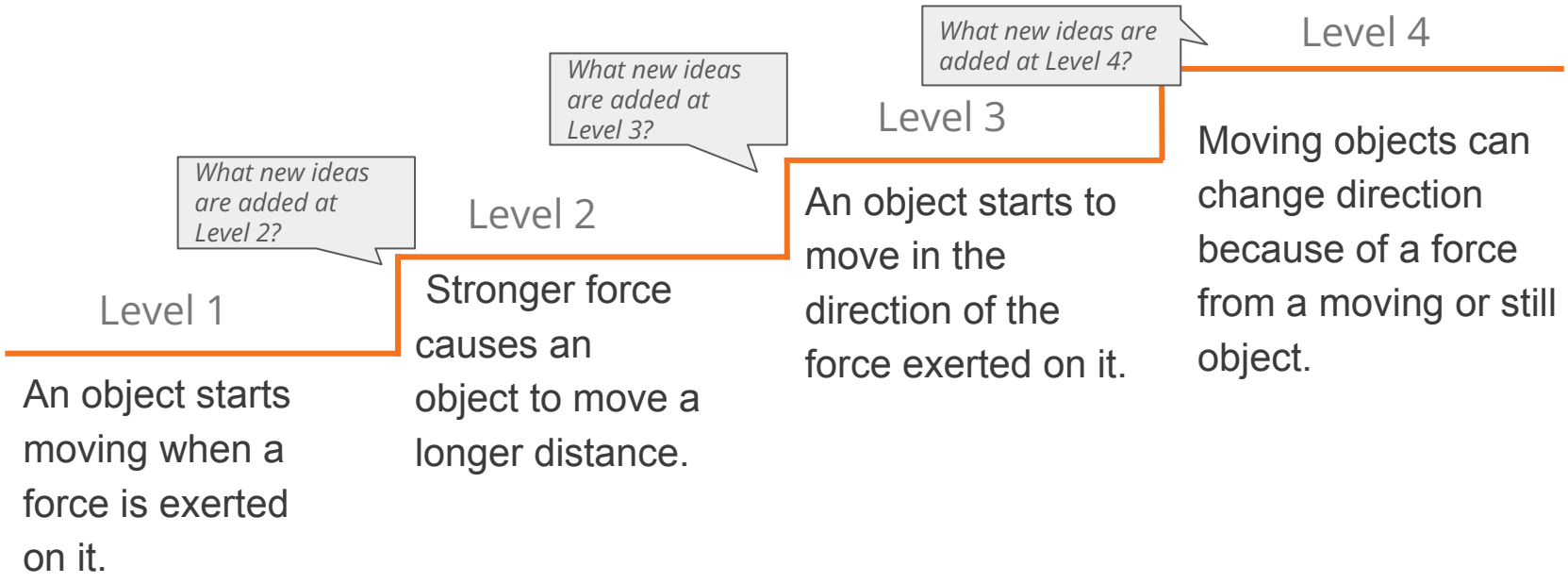
Pg. 7, 8



Progress Build

Pushes and Pulls

Assumed prior knowledge (preconceptions): There is no significant prior knowledge assumed. Students will certainly have experience with observing moving objects, including rolling balls, as well as making objects move in different ways. Students will have experience moving objects by pushing or pulling, but they likely have not thought carefully about how those objects do so. Students will have opportunities to explore these kinds of actions more carefully over the course of the unit.

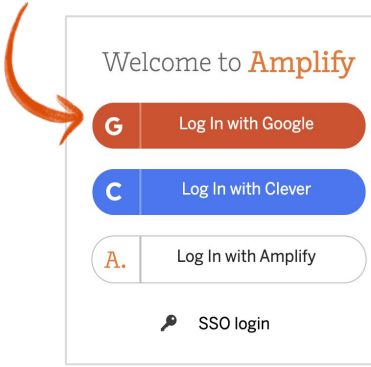


Logging in (demo account)

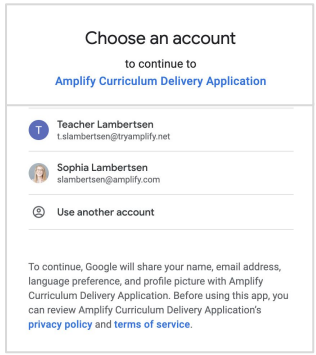
Safari or Chrome

1. Go to **learning.amplify.com**
2. Select **Log in with Google**
3. If you're already logged in with other Google accounts, click **Use another account**
4. Enter teacher demo account credentials
   - xxxxxxx@pd.tryamplify.net
   - Password: xxxx

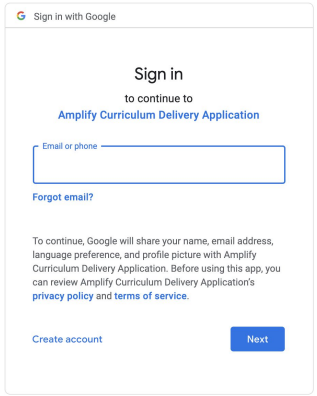
Steps 1-2

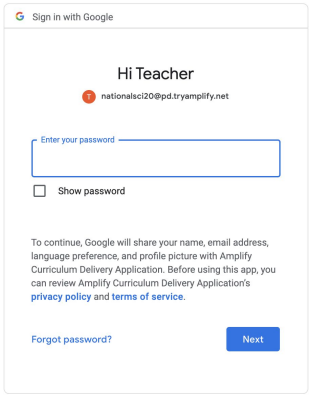


Step 3



Step 4





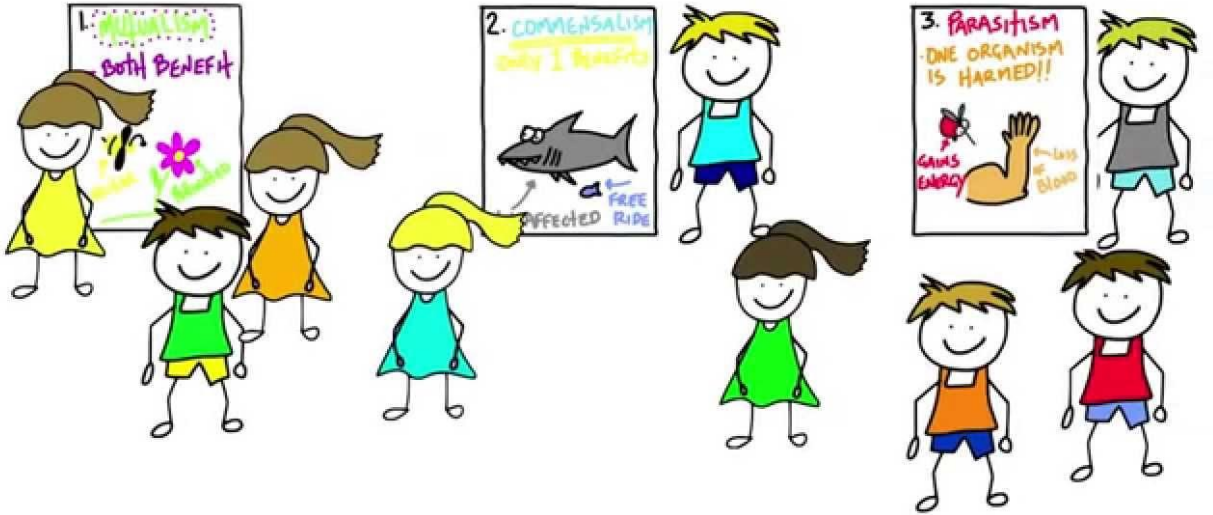
Progress Build analysis

Group work time

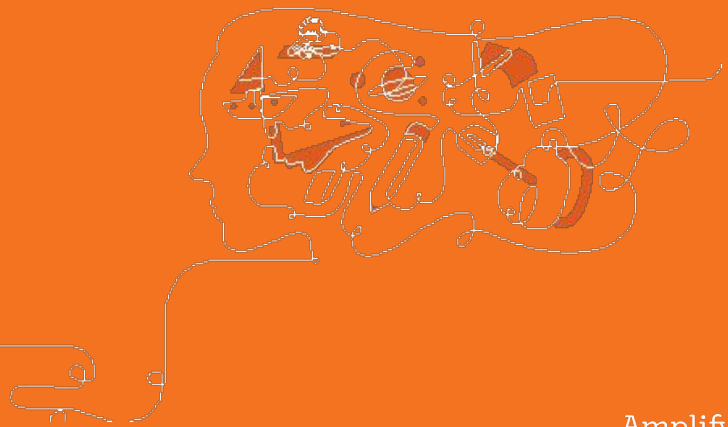
- With your group or partner, create a visual representation of one level of the progress build.

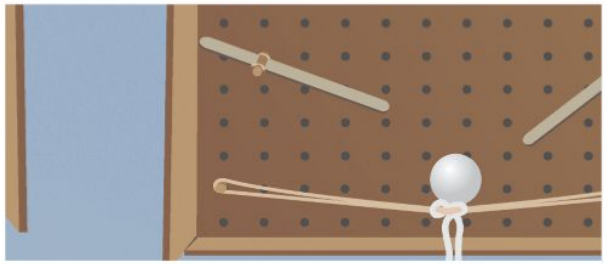
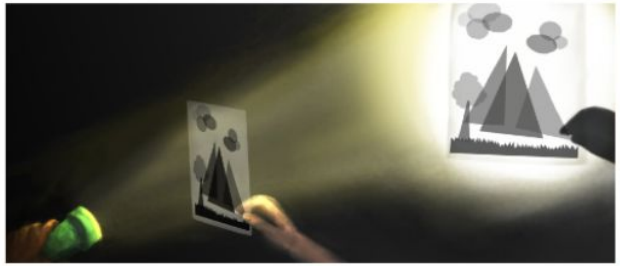
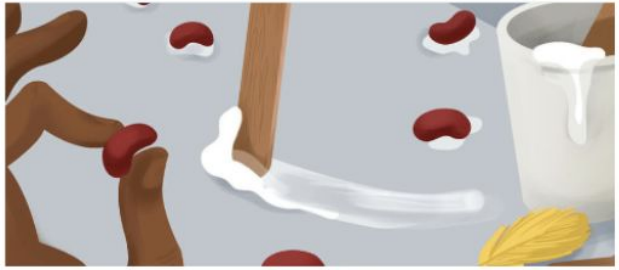
Progress Build analysis

Gallery Walk



Break



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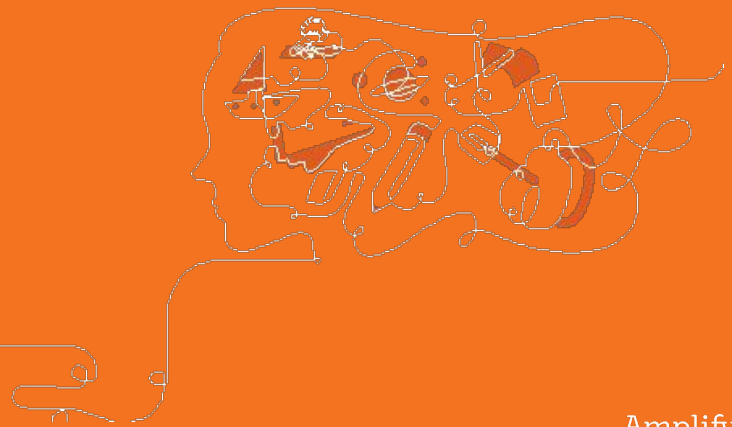
Pre-Unit Assessment



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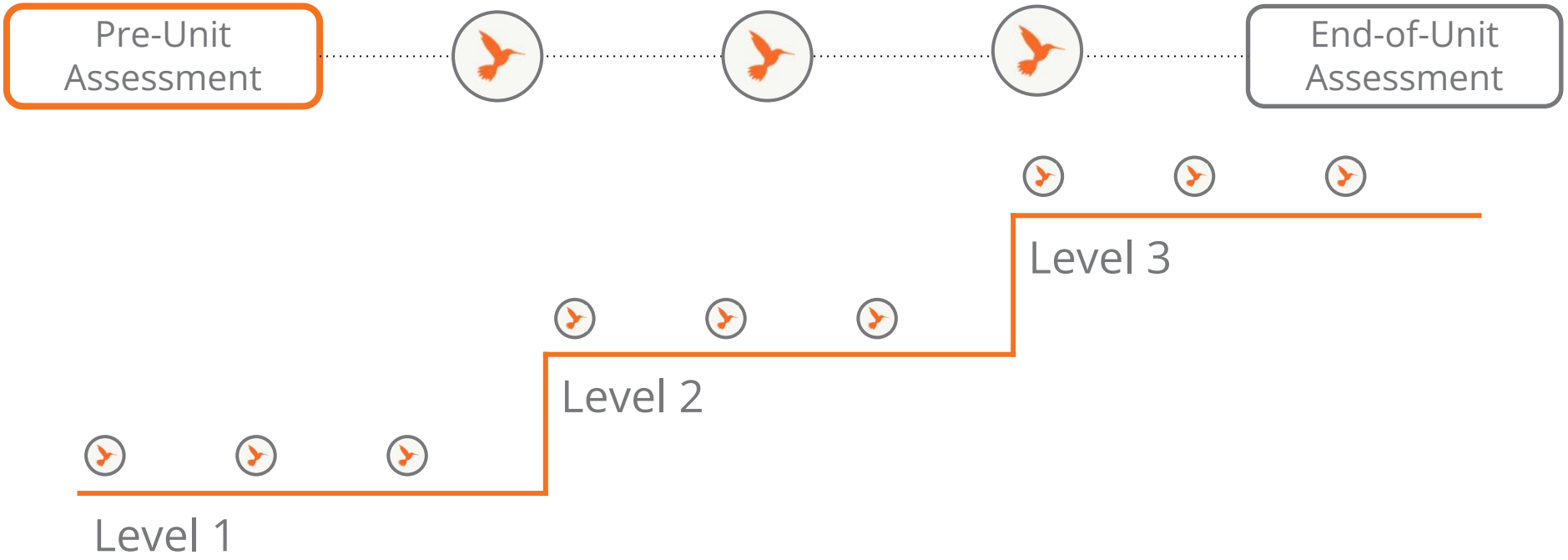

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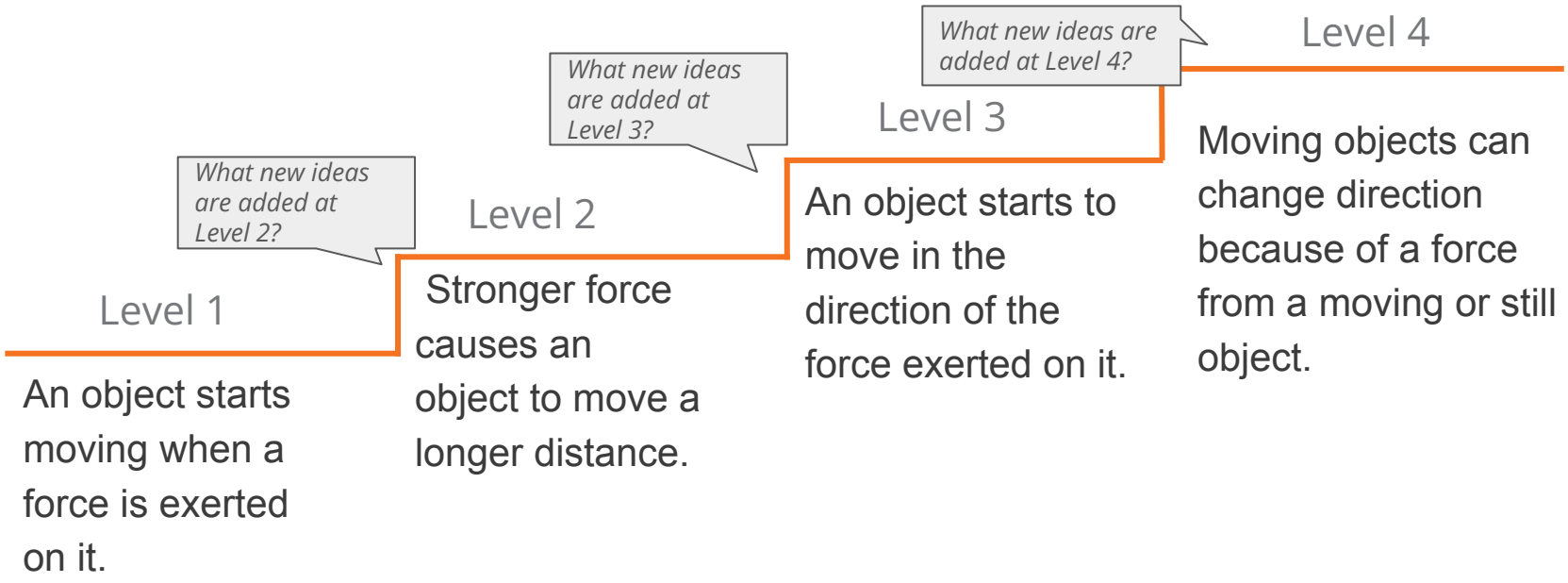
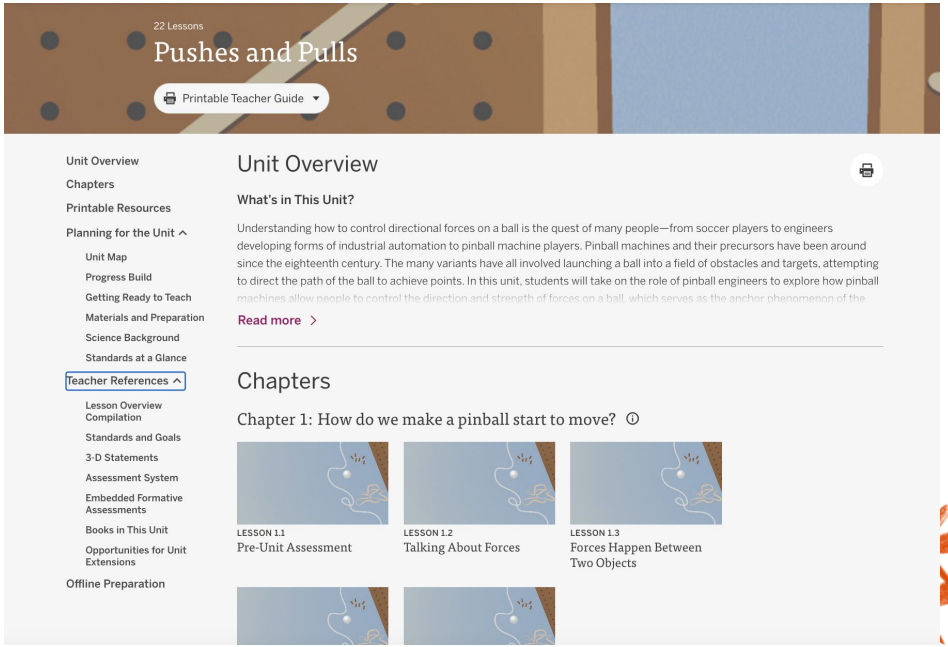


Pre-Unit Assessment

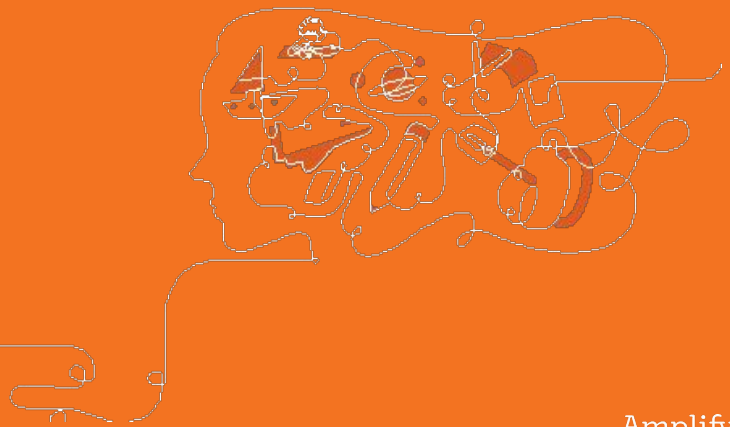
Lesson 1.1

Locate the Assessment Guide in Lesson 1.1 of your unit and skim it.

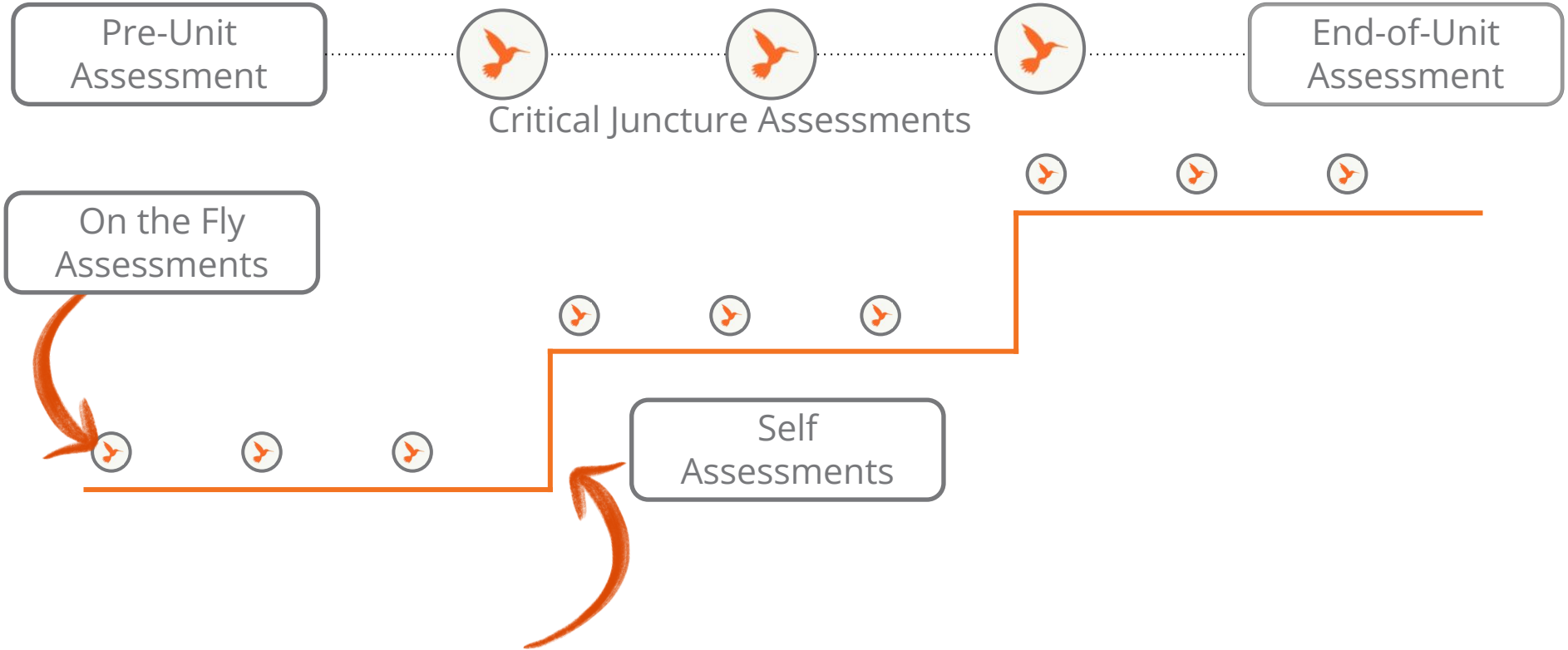
Open up the classroom slides and see how the pre-unit assessment is embedded in the lesson.



Formative Assessments

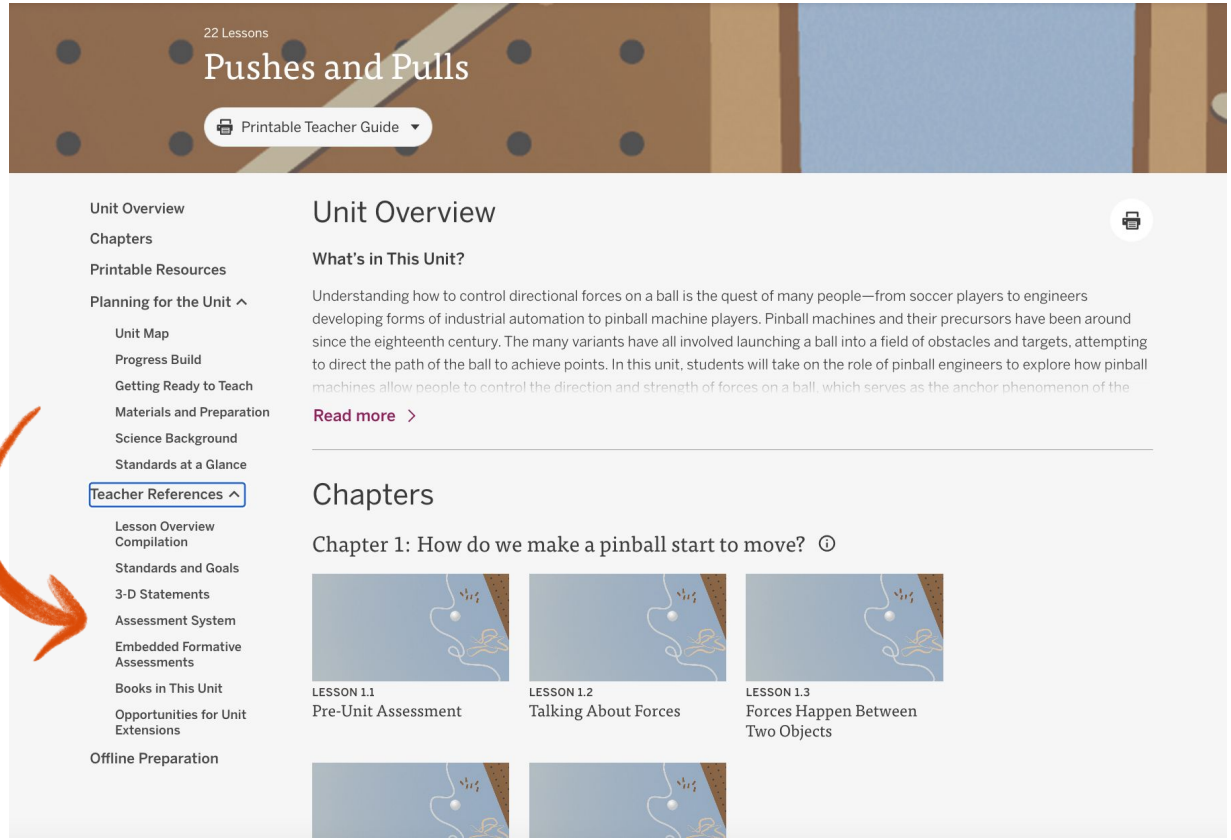


K-5 Assessment System



Formative Assessment Document

Pushes and Pulls



On-the-Fly Assessments

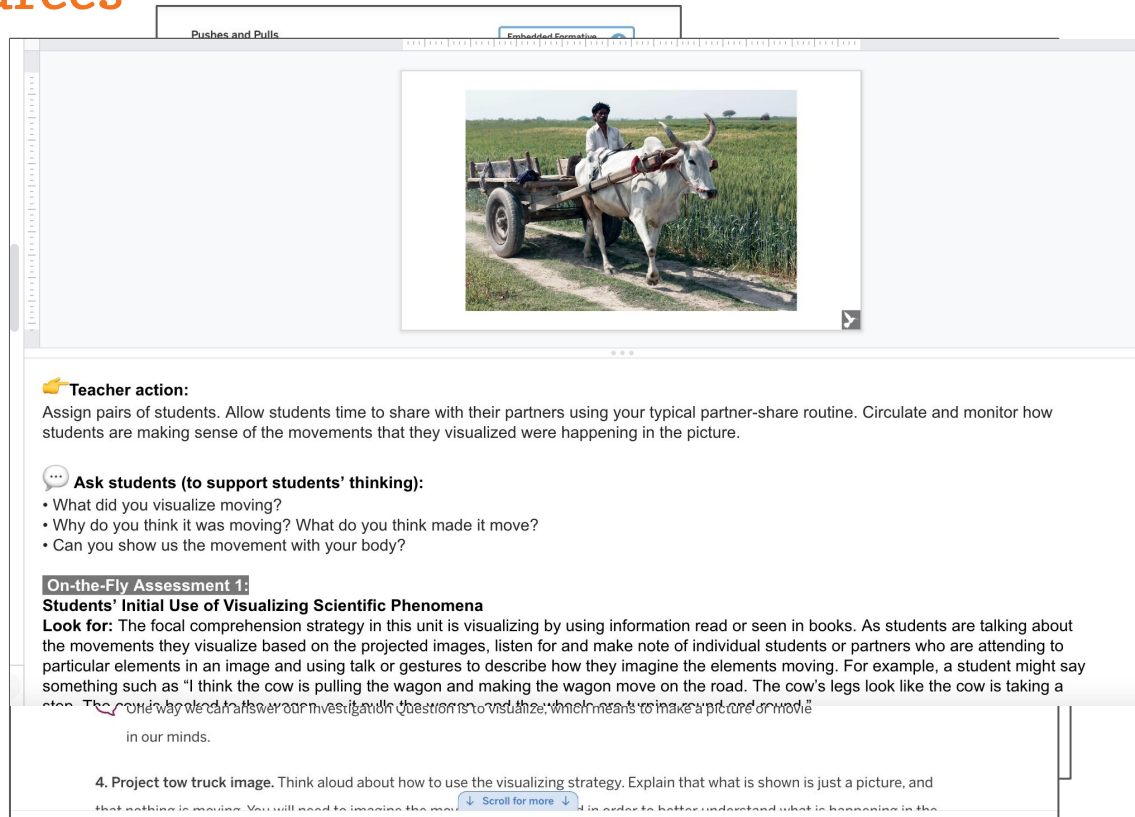
- Track student progress within a Progress Build level
- Embedded into instruction
- Assessment resource includes “Look for” and “Now what”
- Incremental build towards the Critical Juncture

Formative assessment information

Locating assessment resources

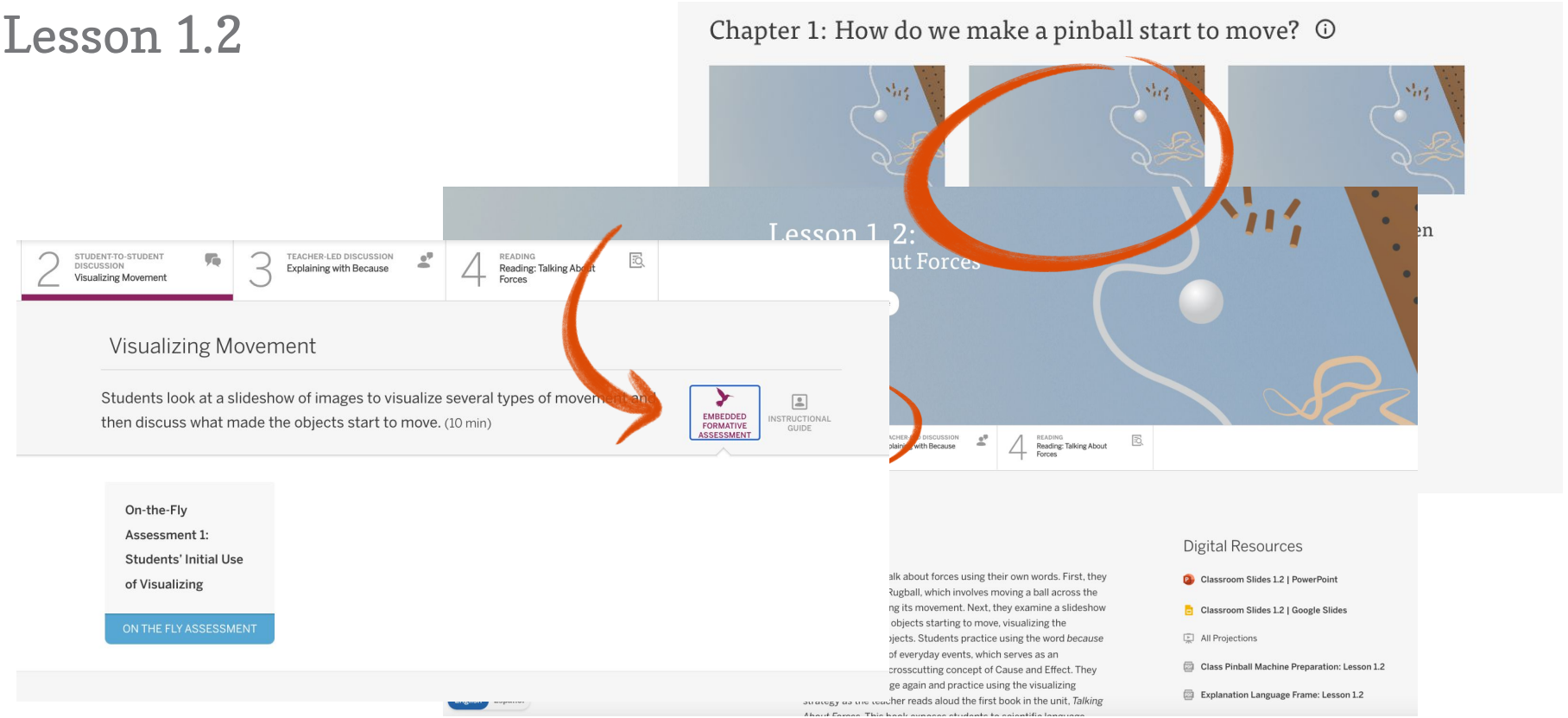
Full text of assessment

- Embedded Formative Assessments document
- Instructional guide
- Classroom Slides notes



On The Fly Assessment

Lesson 1.2



Embedded Formative Assessment

On-the-Fly, Lesson 1.2

Look for: The focal comprehension strategy in this unit is visualizing by using information read or seen in books. As students are talking about the movements they visualize based on the projected images, listen for and make note of individual students or partners who are attending to particular elements in an image and using talk or gestures to describe how they imagine the elements moving. For example, a student might say something such as “I think the cow is pulling the wagon and making the wagon move on the road. The cow’s legs look like the cow is taking a step. The cow is hooked to the wagon, so it pulls the wagon, and the wheels are turning round and round.”

Now what? As you reflect on the activity with the class, repeat one or two accurate examples of visualizing that you noticed in students’ talk. Highlight the way that students took what could be seen in the images and then went beyond it in describing movement. For example, you might say something such as “I noticed Rosa’s example of visualizing with this picture. She noticed how the cow’s legs were forward and imagined the cow taking a step. She saw that the cow is hitched to the wagon, so she imagined the wagon rolling forward on its wheels as the cow walked. Good visualizing takes what is in a picture or words and uses those things to imagine something more.” If students generally had difficulty visualizing, pick another image and model visualizing particular movement based on specific elements in the image.

Classroom slides

Lesson 1.4

Engineers work together to learn more about the things they study.

As you look at the pictures share your ideas with your partner and talk about how to answer this question: **What movements did you visualize in the picture?**

👉**Teacher action:**

Assign pairs of students. Allow students time to share with their partners using your typical partner-share routine. Circulate and monitor how students are making sense of the movements that they visualized were happening in the picture.

💬 **Ask students (to support students' thinking):**

• What did you visualize moving?
• Why do you think it was moving? What do you think made it move?
• Can you show us the movement with your body?

On-the-Fly Assessment 1:

Students' Initial Use of Visualizing Scientific Phenomena

Look for: The focal comprehension strategy in this unit is visualizing by using information read or seen in books. As students are talking about the movements they visualize based on the projected images, listen for and make note of individual students or partners who are attending to particular elements in an image and using talk or gestures to describe how they imagine the elements moving. For example, a student might say something such as "I think the cow is pulling the wagon and making the wagon move on the road. The cow's legs look like the cow is taking a step. The cow is hooked to the wagon, so it pulls the wagon, and the wheels are turning round and round."

On the Fly Assessment

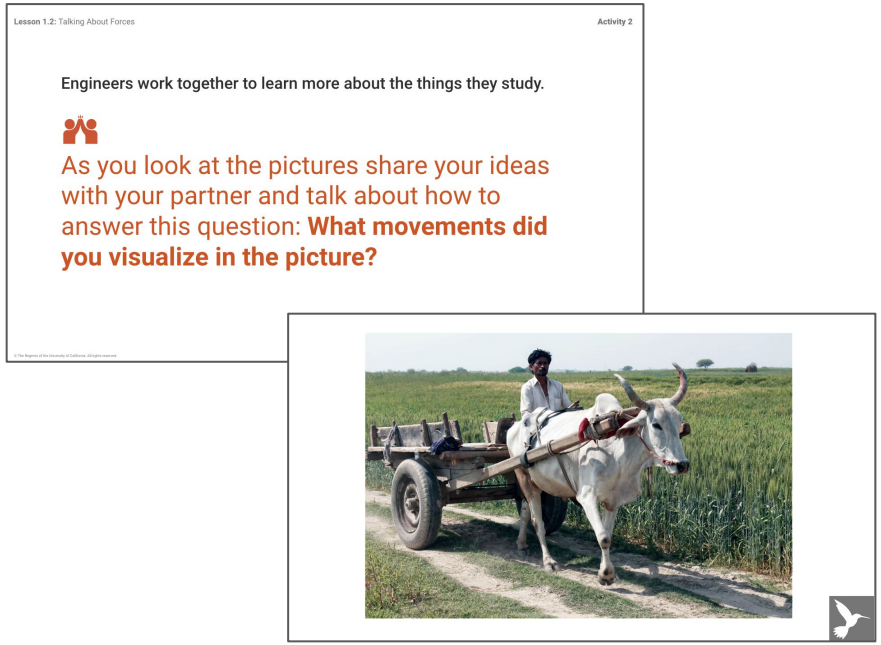
Work time

- Explore the On-the- Fly Assessments

Example assessment (On-the-Fly, Lesson 1.4)

Reflection

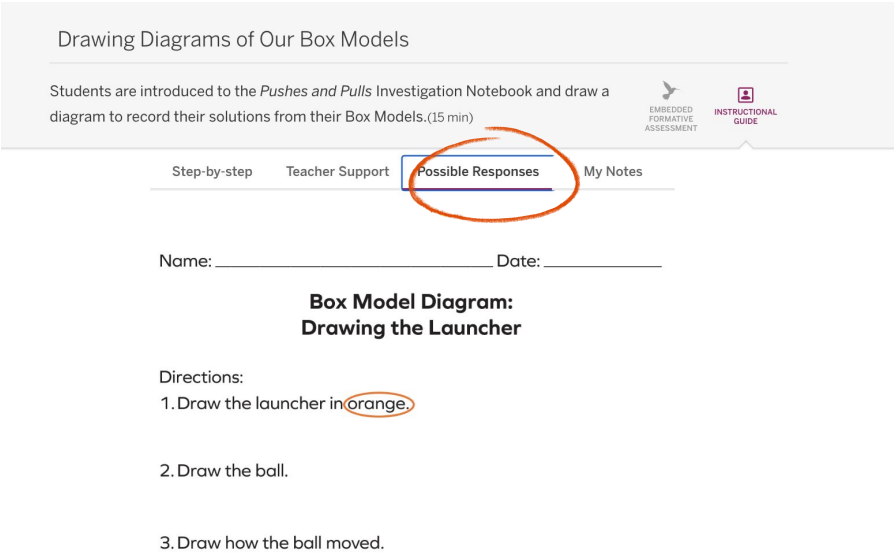
- What **data** can a teacher collect from this activity?
- What can a teacher **do** with this information?



Formative assessment information

Possible student responses

- Within assessments:
  - “Look fors” (OtF)
  - “Assess Understanding” (CJ)
- Possible responses within the Instructional Guide
- Digital resources
  - Assessment Guides
  - Teacher References

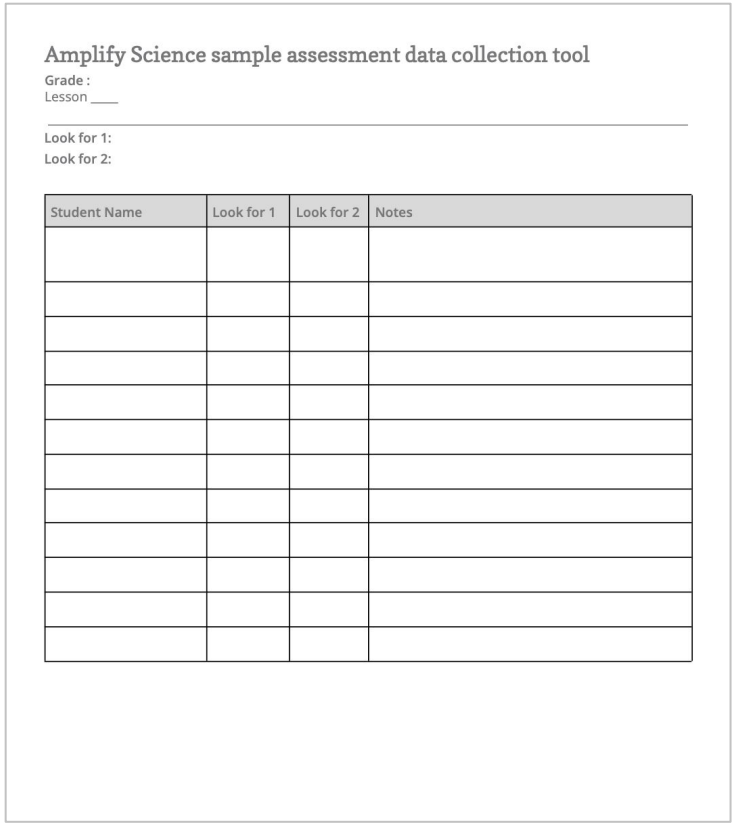


Classroom connection

Collecting formative assessment data

Plan ahead for what you're looking and listening for.

Create a system that's easy for you to use.



Amplify Science sample assessment data collection tool

Grade :
Lesson ____

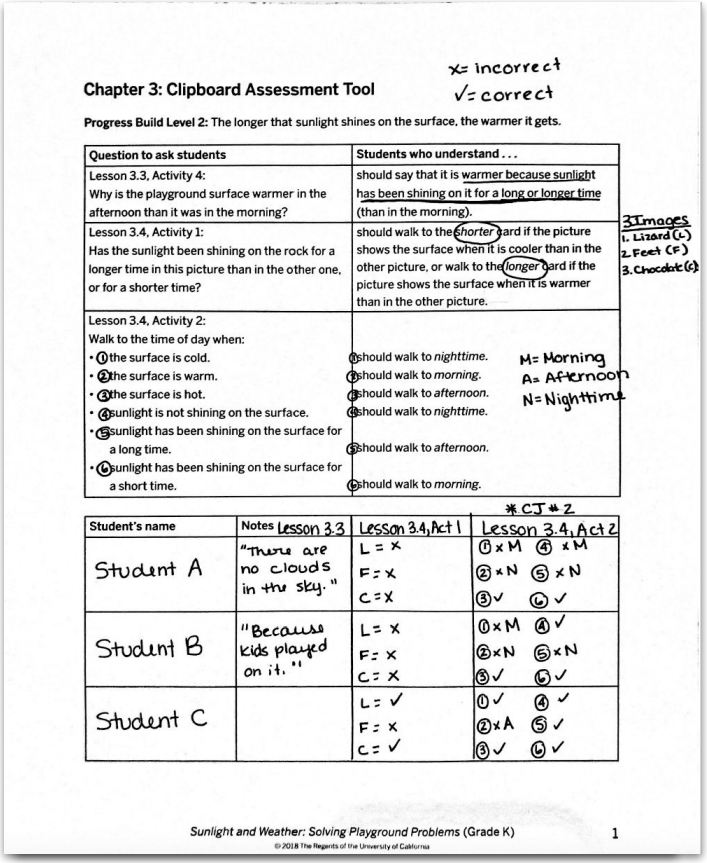
Look for 1:
Look for 2:

Student Name	Look for 1	Look for 2	Notes

Pgs. 14-15

K-1 Clipboard Assessment Tool

The Clipboard Assessment Tool offers a support for collecting data for the On-the-Fly and Critical Juncture Assessments that align to each Progress Build level in the unit.



x= incorrect
✓= correct

Chapter 3: Clipboard Assessment Tool

Progress Build Level 2: The longer that sunlight shines on the surface, the warmer it gets.

Question to ask students	Students who understand . . .
Lesson 3.3, Activity 4: Why is the playground surface warmer in the afternoon than it was in the morning?	should say that it is warmer because sunlight has been shining on it for a long or longer time (than in the morning).
Lesson 3.4, Activity 1: Has the sunlight been shining on the rock for a longer time in this picture than in the other one, or for a shorter time?	should walk to the *shorter* card if the picture shows the surface when it is cooler than in the other picture, or walk to the *longer* card if the picture shows the surface when it is warmer than in the other picture.
Lesson 3.4, Activity 2: Walk to the time of day when: • ① the surface is cold. • ② the surface is warm. • ③ the surface is hot. • ④ sunlight is not shining on the surface. • ⑤ sunlight has been shining on the surface for a long time. • ⑥ sunlight has been shining on the surface for a short time.	① should walk to *nighttime*. ② should walk to *morning*. ③ should walk to *afternoon*. ④ should walk to *nighttime*. ⑤ should walk to *afternoon*. ⑥ should walk to *morning*.

3 Images
1. Lizard (L)
2. Feet (F)
3. Chocolate (C)

M= Morning
A= Afternoon
N= Nighttime

* CJ # 2

Student's name	Notes Lesson 3.3	Lesson 3.4, Act 1	Lesson 3.4, Act 2
Student A	"There are no clouds in the sky."	L = x F = x C = x	① x M ④ x M ② x N ⑤ x N ③ ✓ ⑥ ✓
Student B	"Because kids played on it."	L = x F = x C = x	① x M ④ ✓ ② x N ⑤ x N ③ ✓ ⑥ ✓
Student C		L = ✓ F = x C = ✓	① ✓ ④ ✓ ② x A ⑤ ✓ ③ ✓ ⑥ ✓

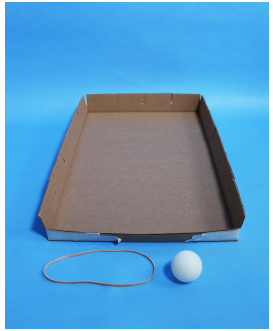
Sunlight and Weather: Solving Playground Problems (Grade K) 1

Additional formative assessment information

On-the-Fly Assessments

In addition to assessing concepts in the Progress Build, some On-the-Fly Assessments provide data about:

- Science and Engineering Practices
- Crosscutting Concepts
- Literacy skills
- Student collaboration



NGSS connection: This formative assessment reveals student knowledge and use of Disciplinary Core Ideas PS2.A: Forces and Motion (PS2.A-P2: Pushing or pulling on an object can change . . . its motion and can start or stop it) and PS2.B: Types of Interactions (PS2.B-P1: When objects touch or collide, they push on one another and can change motion) and the Crosscutting Concept of Cause and Effect (CE-P2: Events have causes that generate observable patterns.).

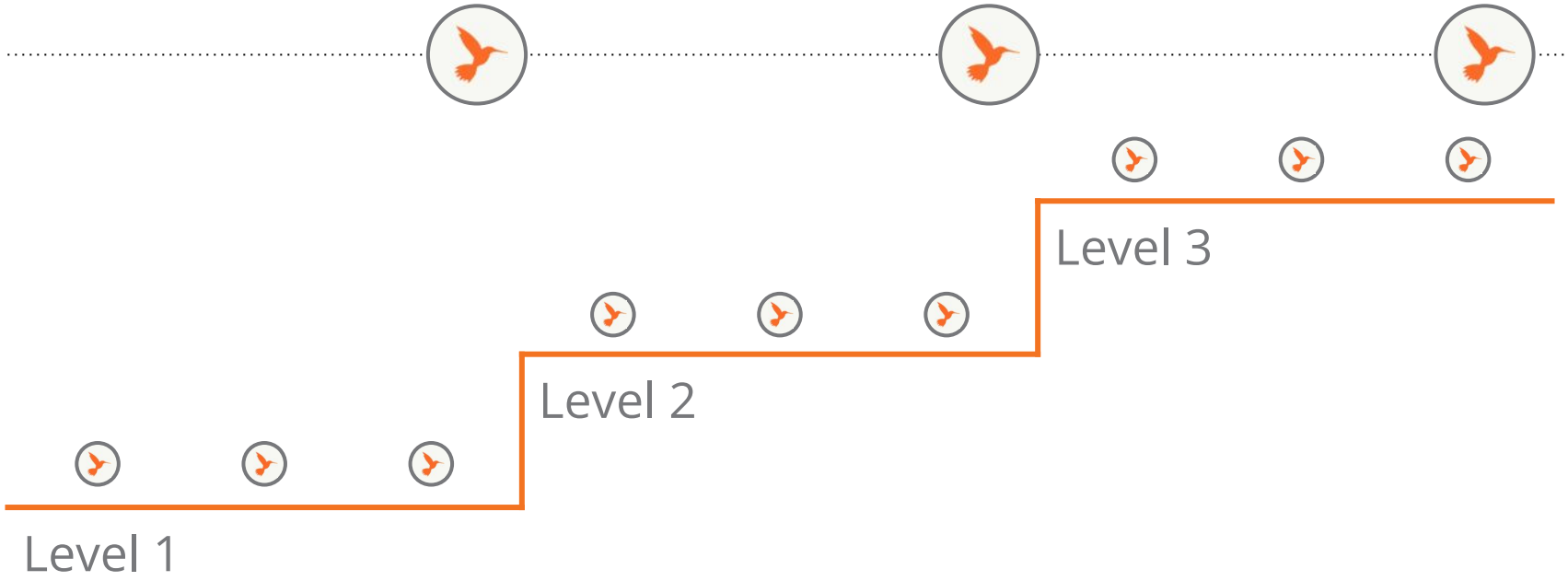
Additional 3-D Assessment Opportunities

To assess students on the practice of Developing and Using Models (SEP 2), as you ask students about their Box Model diagrams look to see that students are representing the launcher, the ball, and the movement of the ball in a way that is consistent with their oral descriptions. Students should be developing models that represent the pattern of how the balls moved relative to the launcher in their Box Models.

See the *Pushes and Pulls* Crosscutting Concept Tracker (in Digital Resources for Lesson 1.1) to track student progress across the unit with the crosscutting concept of Cause and Effect, and for prompts that can be used to elicit further evidence of student understanding of the crosscutting concept.

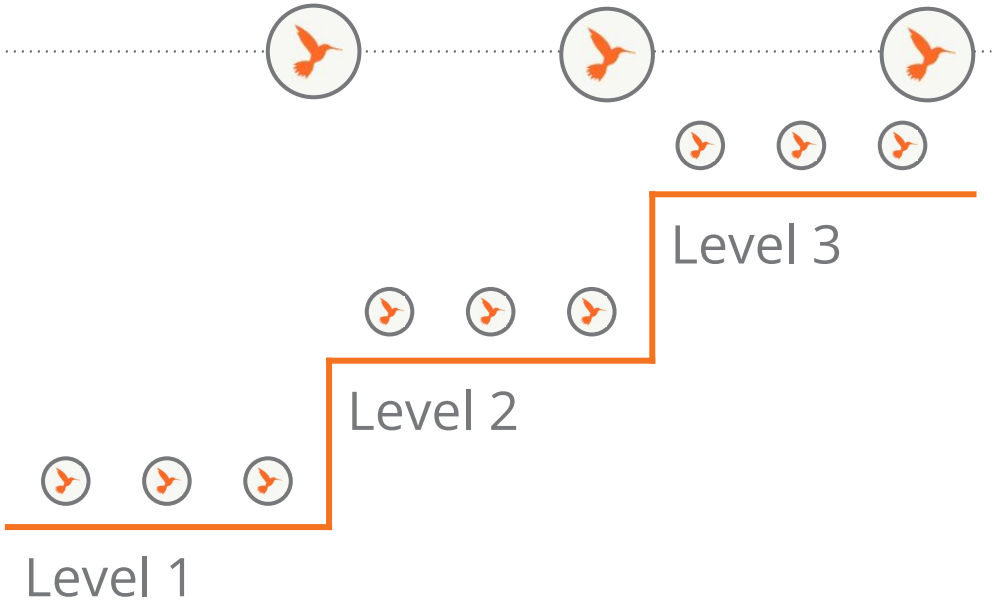
Questions?

Critical Juncture Assessments

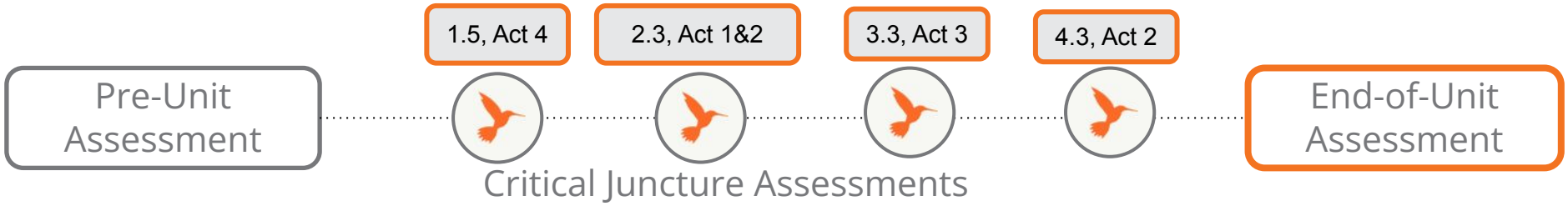


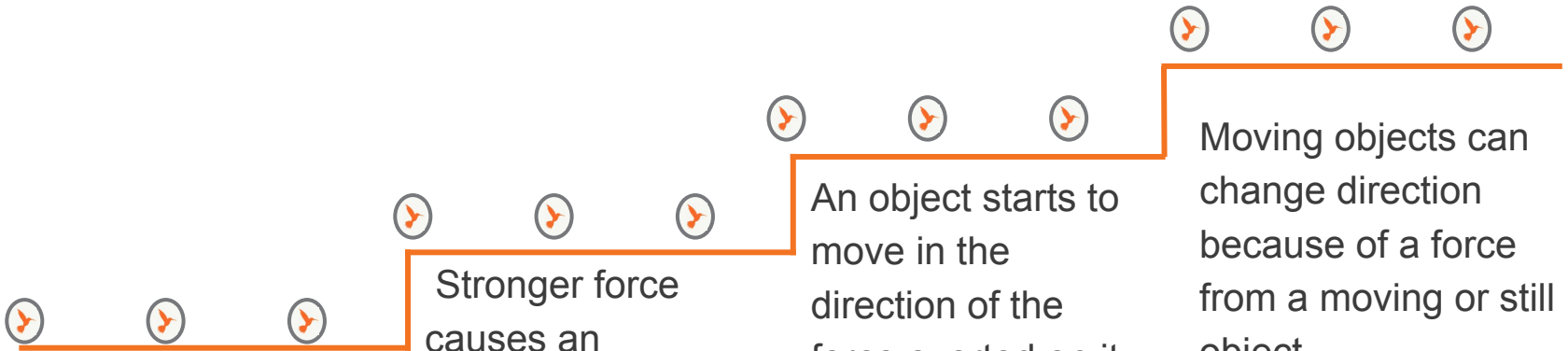
Critical Juncture Assessments

- Track student progress between Progress Build levels
- Embedded into instruction
- Assessment resource includes “Assess Understanding” and “Tailor Instruction”



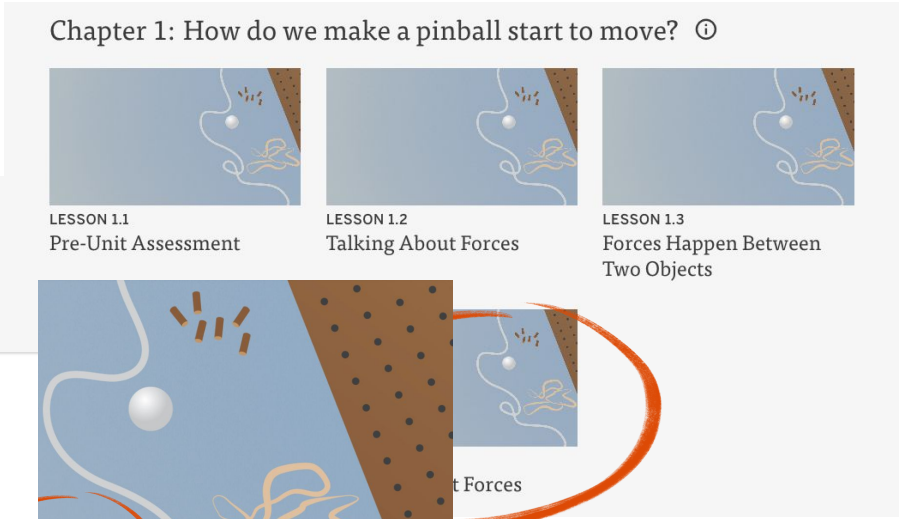
K-5 Assessment System





Critical Juncture Assessment

Lesson 1.5, Activity 4



Revisiting Talking About Forces

Students reread *Talking about Forces* to talk about how forces are happening between pairs of objects in the pictures.(15 min)

EMBEDDED FORMATIVE ASSESSMENT

INSTRUCTIONAL GUIDE

Critical Juncture Assessment 1: Students' Understanding of Movement as Caused By a Force

CRITICAL JUNCTURE

Differentiation
Standards
Vocabulary

so far in the context of engineering practices, including how they have engaged in the design cycle and made explanations. First, students continue learning about how engineers work as they revisit the What Engineers Do chart. Then, they share the solutions they designed in their Box Models and add a launcher to the Class Pinball Machine. Students use their ideas to contribute to a class explanation of why their pinball started to move and then end the

Digital Resources

- Classroom Slides 1.5 | PowerPoint
- Classroom Slides 1.5 | Google Slides
- Class Pinball Machine Preparation: Lesson 1.5
- Shared Writing: Lesson 1.5
- What Engineers Do Chart: Completed

Embedded Formative Assessment

Critical Juncture Lesson 1.5

Critical Juncture Assessment: Students read and discuss. While students are working, circulate and monitor how they talk about the objects in the pictures. Listen for whether they accurately describe objects as starting to move because another object exerted a force on it. As you see opportunities, probe students' thinking with additional questions:

What is the object that started to move in this picture?

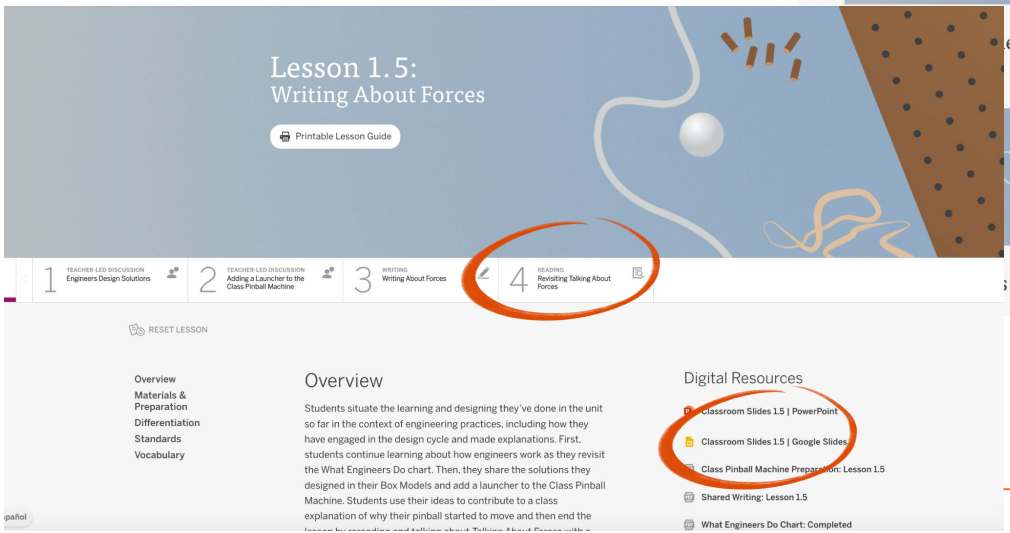
[The worm.]

Why did it start to move?

[The worm moved because the bird exerted a force on it. The worm moved because it was pulled.]

Critical Juncture Assessment

Lesson 1.9, Activity 2



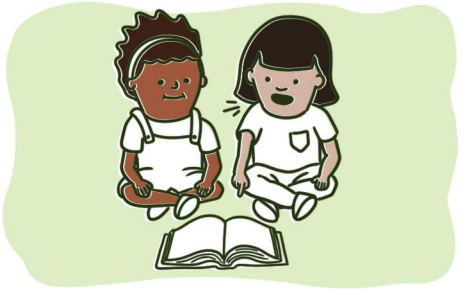
Partner Reading

1.

Sit **next to** your partner.

2.

Put the **book between** you.



3.

Work together to read and understand.

objects as starting to move because another object exerted a force on it. As you see opportunities, probe students' thinking with additional questions, as in the example below:

💬**Ask students:**

• What is the object that started to move in this picture?
• Why did it start to move?

👩**Students may respond:**

• The worm.
• The worm moved because the bird exerted a force on it. The worm moved because it was pulled.

Critical Juncture Assessment 1:

Students' Understanding of Movement as Caused By a Force

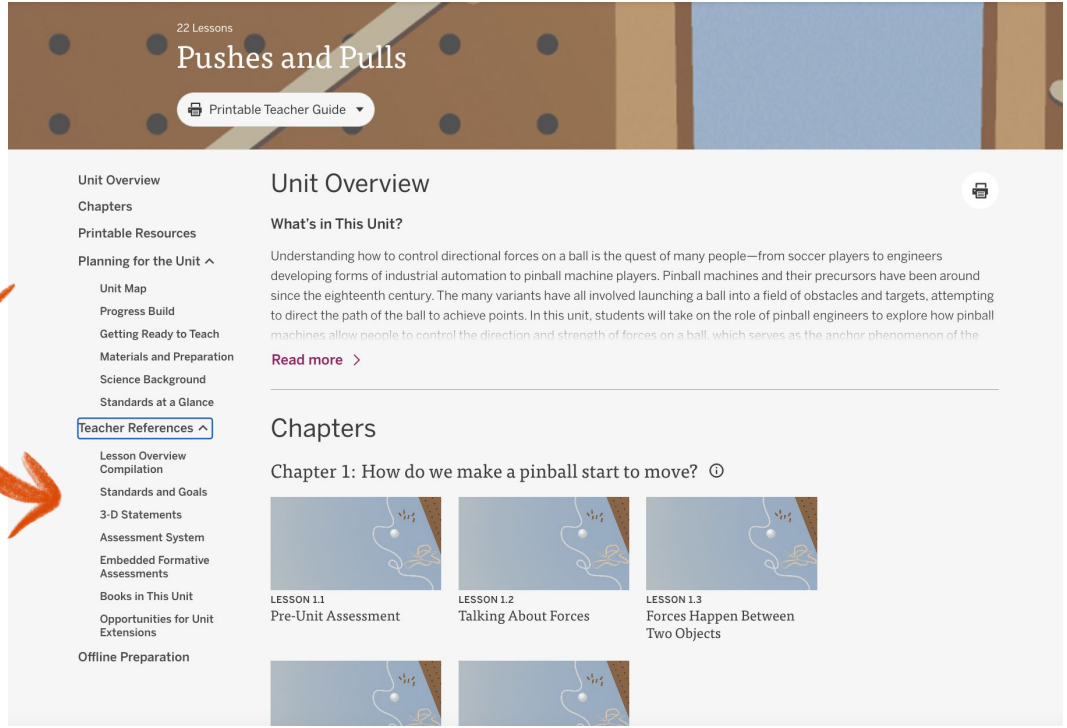
Assess understanding: Questioning students as they talk is an additional opportunity for you to assess their understanding that an object starts moving because a force was exerted on it by another object. The questions included with the Chapter 1: Clipboard Assessment Tool for this lesson ("What is the object that started to move in the picture? Why did it start to move?") are available as a reference. There is also a space to record notes about several students' responses. In general, students who understand these ideas should be able to explain that the moving object in the picture started to move because the other object exerted a force on it.

Tailor Instruction: Review your notes about students' responses from this activity and from On-the-Fly Assessment 3 in Lesson 1.4. If many of your students are not showing evidence of understanding that an object starts moving because a force was exerted on it by another object, we recommend offering additional instruction in Lesson 2.1. In the first activity of Lesson 2.1, you can take time for more focused instruction by using the objects from the Investigating Forces activity in Lesson 1.3. You can create three or four stations, each featuring a pair of objects where one is used to move the other. (See the Augmenting Instruction: Differentiating in Response to Critical Juncture Assessment 1 note in the Teacher Support tab in that activity for details.) If a smaller number of your students are not showing evidence of understanding those ideas, you can lead a similar discussion with just those students, before or during Lesson 2.1.

Formative Assessments

Work time

- Explore the Critical Juncture Assessments

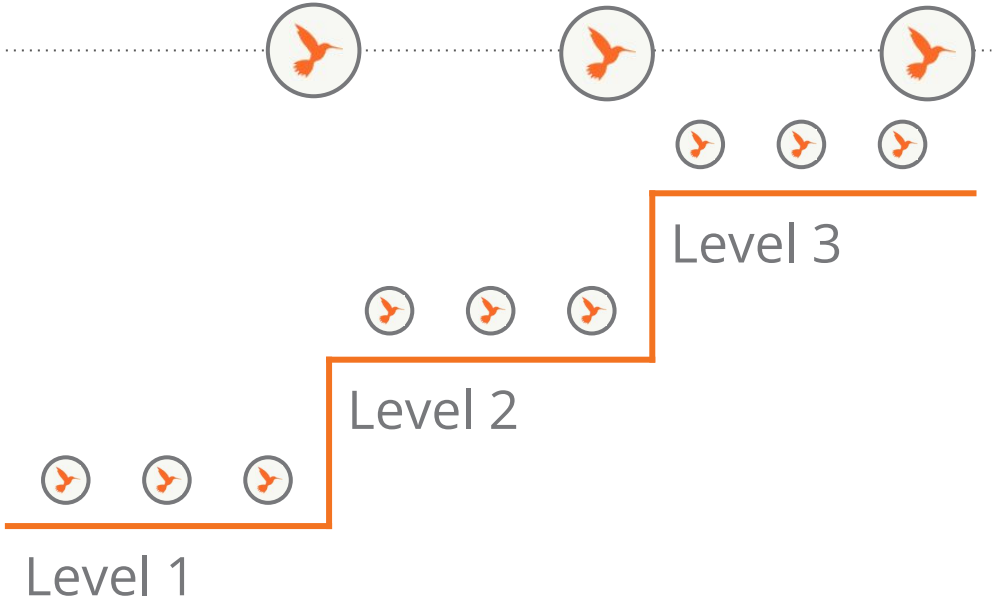


Embedded formative assessments

Reflection

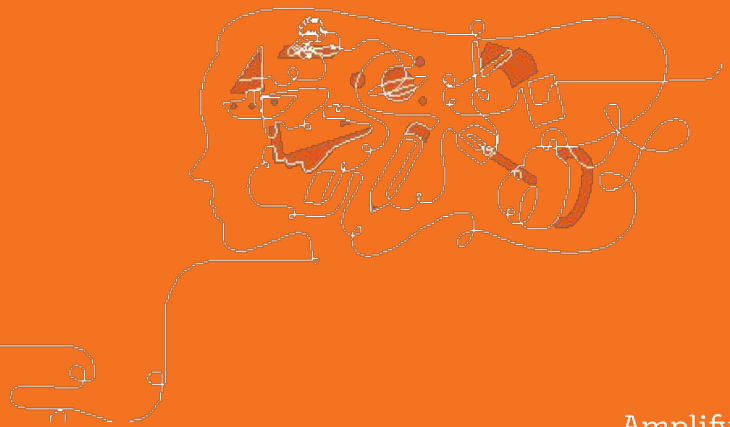
In 1-2 sentences, describe the relationship among:

- Progress Build
- On-the-Fly Assessments
- Critical Juncture Assessments

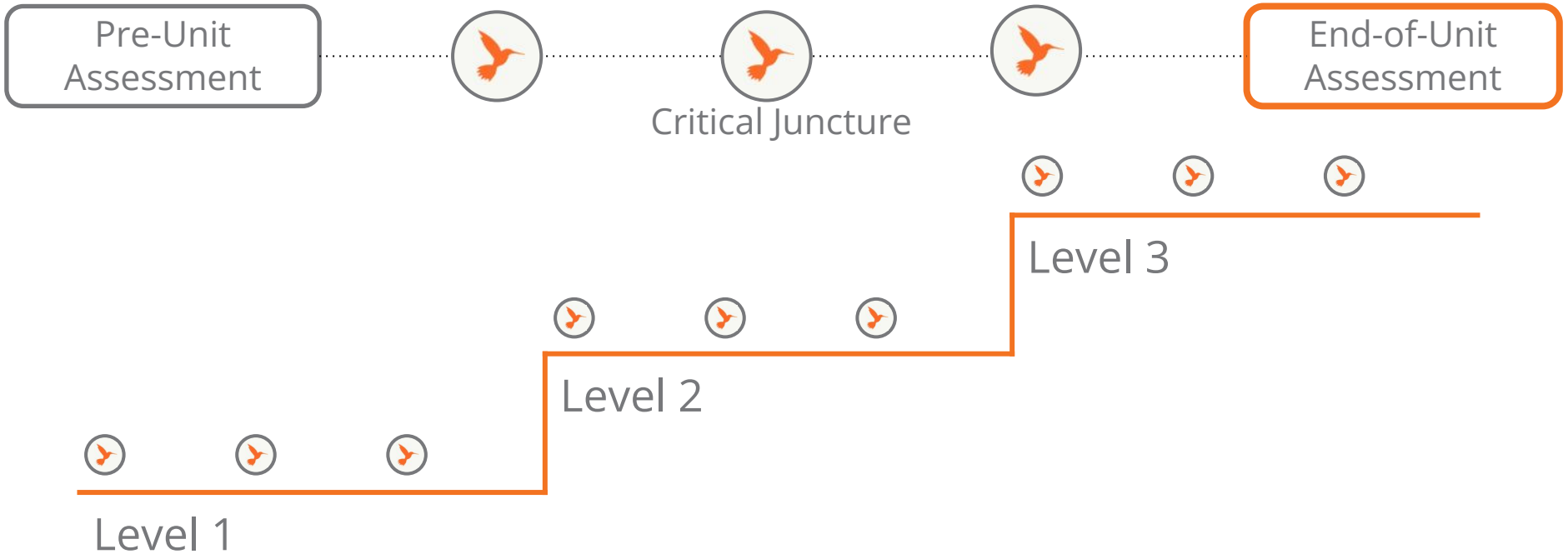


Questions?

End-of-Unit Assessment



K-5 Assessment System



End-of-Unit Assessment

3-dimensional assessment opportunity

- Summative assessment of mastery of science concepts
- Formative assessment of Science and Engineering Practices

Lesson Review Prior to the End of Unit Assessment

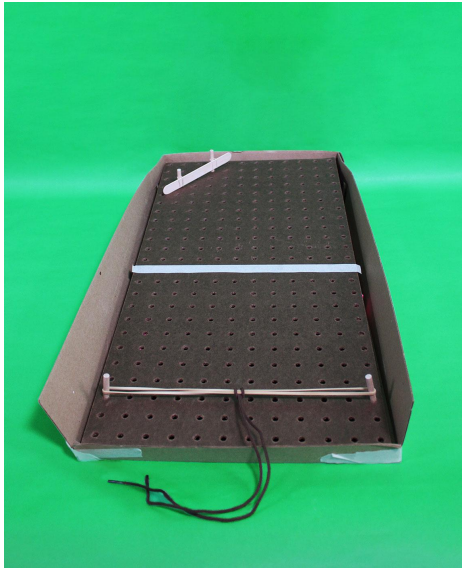
Lesson 6.2

- Students discuss how objects they observed in the School Forces Tour provide evidence of different kinds of forces being exerted.
- They participate in a Shared Reading of *A Busy Day in Pushville*, which provides opportunities for them to describe the forces shown in the book in terms of strength and direction
- Students go on a gallery walk to review artifacts and learning activities from each chapter, and partners discuss what they learned. .

End of Unit Assessments

What are students being asked to do?

Students will talk to the teacher about the **forces that are making the ball move.**



3 Dimensional Learning

Assessment Guide

The assessment task in this lesson provides guidance for assessing student understanding of the following standards:

Science and Engineering Practice

- Practice 7: Engaging in Argument from Evidence
  - ARG-P6: Construct an argument with evidence to support a claim

Disciplinary Core Ideas

- PS2.A: Forces and Motion:
  - PS2.A-P1: Pushes and pulls can have different strengths and directions. (K-PS2-1, K-PS2-2)
  - PS2.A-P2: Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. (K-PS2-1, K-PS2-2)
- PS2.B: Types of Interactions:
  - PS2.B-P1: When objects touch or collide, they push on one another and can change motion. (K-PS2-1)
- PS3.C: Relationship Between Energy and Forces:
  - PS3.C-P1: A bigger push or pull makes things speed up or slow down more quickly. (K-PS3.C)
- ETS1.A: Defining and Delimiting Engineering Problems:
  - ETS1.A-P2: Asking questions, making observations, and gathering information are helpful in thinking about problems. (K-2-ETS1-1)

Crosscutting Concept

- Cause and Effect
  - CE-P2: Events have causes that generate observable patterns.

End of Unit Assesmemt Rubric

Pg..
12=-16

Rubrics 2 and 3

Rubrics 2 and 3 focus on students' explicit understanding of the crosscutting concept of Cause and Effect and their use of a science and engineering practice (supporting an answer with evidence), respectively. Given that students' understanding of crosscutting concepts and their dexterity with science practices develop through regular opportunities across multiple units, mastery is outside the scope of a single unit. Therefore, these two rubrics are intended to be used formatively to guide teacher feedback and future instruction rather than to produce a score or a grade.

Rubric 2: Assessing Students' Understanding of the Crosscutting Concept of Cause and Effect

Rubric 2 focuses on students' descriptions and identifications of an example of cause and effect (in the context of the pinball machine), which is a unifying concept in science and engineering.

Rubric 2: Assessing Students' Understanding of the Crosscutting Concept of Cause and Effect
Did the student describe an appropriate example of cause and effect and explicitly identify both cause and effect accurately? • Did the student provide an appropriate example of cause and effect from the Class Pinball Machine? (For example, did the student indicate the effect as the observed movement of the ball and the cause as the force exerted on the ball?) • Did the student explicitly identify the cause and the effect in his/her example?

Rubric 3: Assessing Students' Understanding of the Practice of Supporting an Answer with Evidence

Rubric 3 focuses on students' descriptions of appropriate observations as evidence of the nature of the force exerted.

Rubric 3: Assessing Students' Understanding of the Practice of Supporting an Answer with Evidence
Did the student describe the movement of the pinball when asked to describe the evidence for his/her response? • Did the student describe the long distance traveled by the ball as evidence that a stronger force was exerted on it? • If the student did not know what to provide when explicitly asked for evidence, did he/she describe the long distance traveled as what he/she saw that led to his/her answer?

Possible Accurate Student Responses

Relevant to each rubric, possible student responses are provided to illustrate an accurate response to each question.

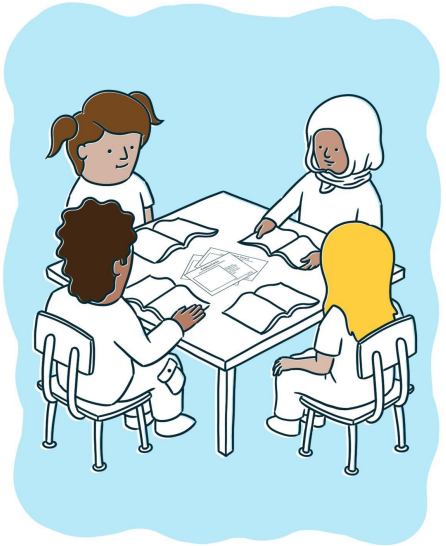
Possible Accurate Student Responses
Science Content: Forces and Motion • *We have learned a lot about how different kinds of forces make things, like the pinball, move in different ways. I am going to make the pinball move in our Class Pinball Machine. Talk to me about the different forces that made the ball move like it did.* The first time, the pinball moved a short distance toward this side of the machine because the launcher exerted a gentle force on the ball toward this side. The second time, the pinball moved a long distance toward that side of the machine because the launcher exerted a strong force in that direction. The ball changed direction because the bumper exerted a force on the ball when the ball hit the bumper. **Responses to follow-up questions** If the student does not mention the force from the bumper: • *Were there any forces exerted on the ball after I launched it the second time? Why do you think so?* Yes, the bumper exerted a force on the ball. I think so because the ball changed direction. If the student does not mention the direction of forces: • *Why did the ball move in this direction when I pulled the launcher and in that direction after the ball hit the bumper?* The launcher exerted a force on the ball. When the ball hit the bumper, the bumper exerted a force on the ball and made it change direction. If the student does not mention the strength of forces: • *Why did the ball move only a short distance the first time but a long distance the second time?* The first time, the launcher exerted a gentle force, so the ball only moved a short distance. The second time, the launcher exerted a strong force, so the ball moved a long distance, and then it hit the bumper.

Possible Accurate Student Responses
Crosscutting Concept: Cause and Effect • *As we have been learning about forces, we have been talking about cause and effect. Cause and effect means that one thing caused another thing to happen. Think about how the ball moved in the pinball machine. Can you describe an example of cause and effect?* The ball moved a long distance because the launcher exerted a strong force on it. If the student has difficulty giving an example: • *Can you use the word because to explain what made the ball move the way it did?* The ball changed direction because the bumper exerted a force on it. If the student still has difficulty giving an example, launch the pinball one more time and provide the following scaffolding: • *What caused the ball to move?* The launcher. • *What happened to the ball when the launcher hit it?* The ball started to move. • *How can we use the word because to explain what happened?* The ball started to move because the launcher hit it. **Science and Engineering Practice: Supporting an Answer with Evidence** • *I launched the ball two times. Which time do you think the force was stronger—the first time or the second time?* The second time. • *What is your evidence that that force was stronger?* The ball went a longer distance. If the student is not sure how to respond: • *What did you see that made you think the force was stronger?* The ball went a longer distance.

End-of-Unit Assessment

Work time

- Open your Participant Notebook to page 12.
- Read the rubrics.
- Read through the questions and the slide deck notes (teacher action).
- Add additional questions to the slides that will elicit the explanations needed.
- What will you have the other students doing while you are individually assessing students.
- Share out.

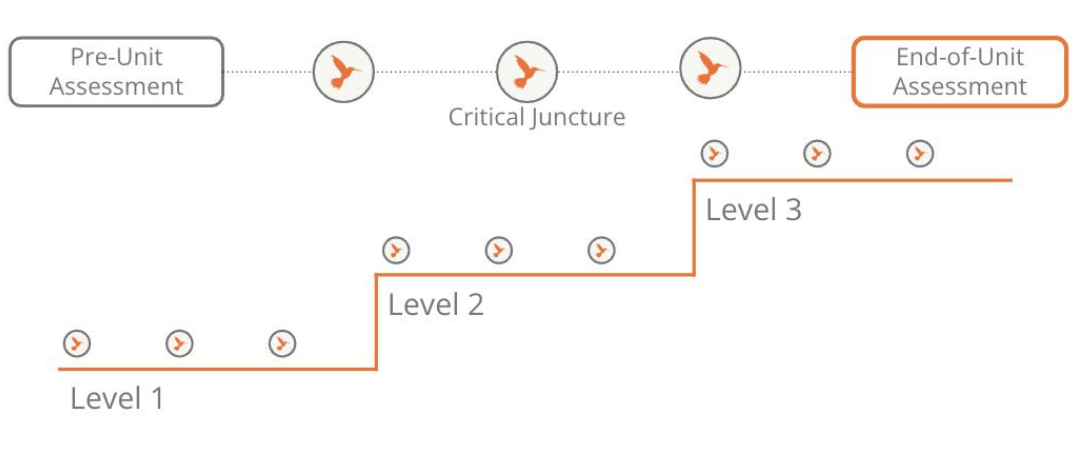


Assessment System

Reflection

How do the Progress Build and assessments work as a **system**?

What are the benefits of this system for students? For teachers?

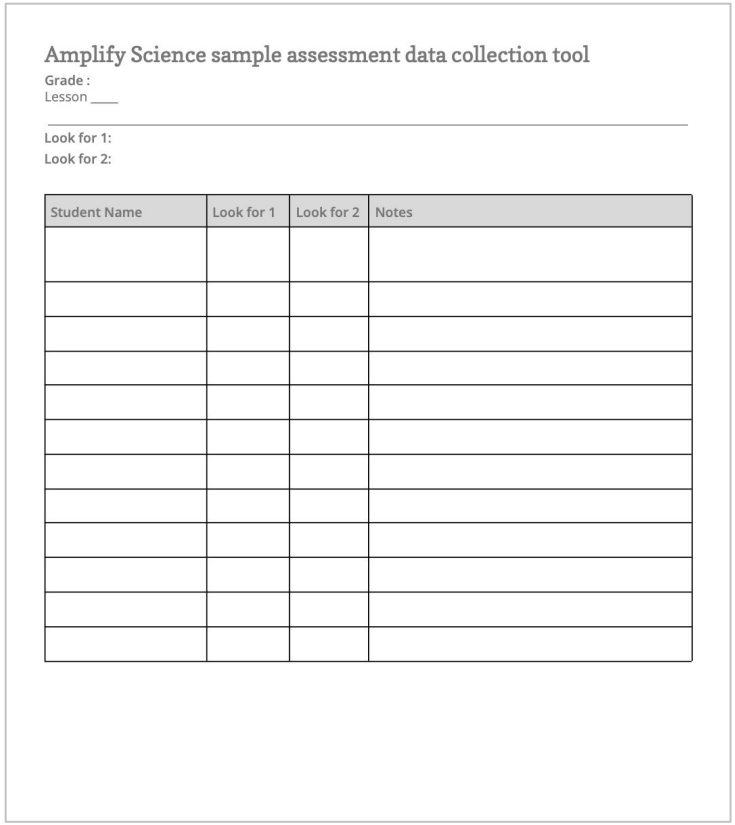


Classroom connection

Collecting formative assessment data

Plan ahead for what you're looking and listening for.

Create a system that's easy for you to use.



Amplify Science sample assessment data collection tool

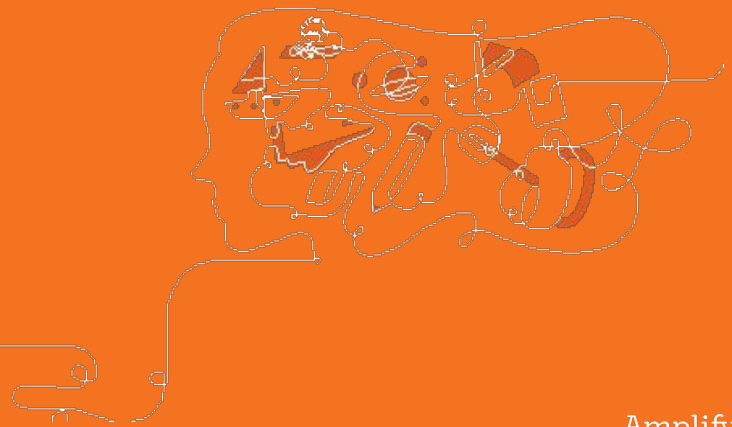
Grade :
Lesson ____

Look for 1:
Look for 2:

Student Name	Look for 1	Look for 2	Notes

Questions?

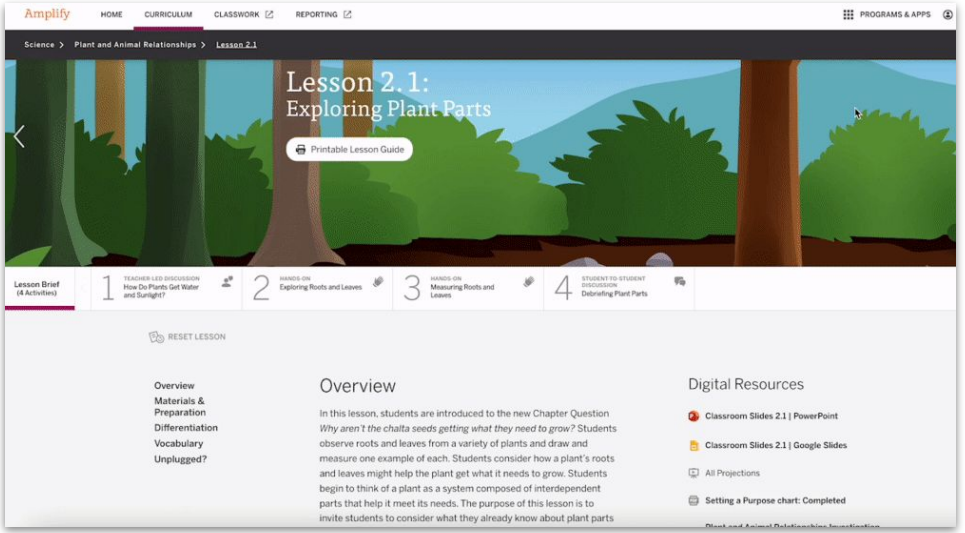
Lunch Break



Resources for NGSS progress monitoring

NGSS Benchmark assessments

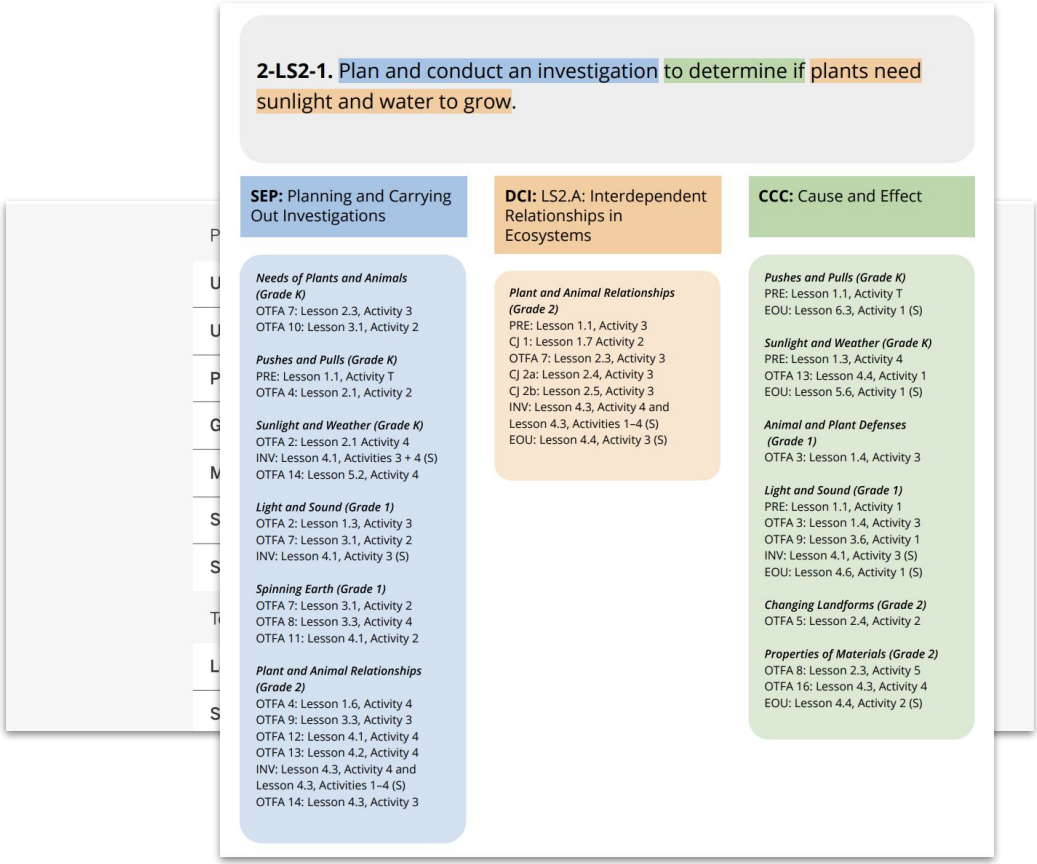
- Accessible in the Global Navigation menu
- Grades 3-5
- 4 assessments per grade



Resources for NGSS progress monitoring

3D Assessment Objectives

- Located in the Unit Guide
- Identifies where each dimension of the target Performance Expectations are assessed in the unit, in the grade, or in the grade-band.



2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow.

SEP: Planning and Carrying Out Investigations

Needs of Plants and Animals (Grade K)
OTFA 7: Lesson 2.3, Activity 3
OTFA 10: Lesson 3.1, Activity 2

Pushes and Pulls (Grade K)
PRE: Lesson 1.1, Activity T
OTFA 4: Lesson 2.1, Activity 2

Sunlight and Weather (Grade K)
OTFA 2: Lesson 2.1 Activity 4
INV: Lesson 4.1, Activities 3 + 4 (S)
OTFA 14: Lesson 5.2, Activity 4

Light and Sound (Grade 1)
OTFA 2: Lesson 1.3, Activity 3
OTFA 7: Lesson 3.1, Activity 2
INV: Lesson 4.1, Activity 3 (S)

Spinning Earth (Grade 1)
OTFA 7: Lesson 3.1, Activity 2
OTFA 8: Lesson 3.3, Activity 4
OTFA 11: Lesson 4.1, Activity 2

Plant and Animal Relationships (Grade 2)
OTFA 4: Lesson 1.6, Activity 4
OTFA 9: Lesson 3.3, Activity 3
OTFA 12: Lesson 4.1, Activity 4
OTFA 13: Lesson 4.2, Activity 4
INV: Lesson 4.3, Activity 4 and Lesson 4.3, Activities 1–4 (S)
OTFA 14: Lesson 4.3, Activity 3

DCI: LS2.A: Interdependent Relationships in Ecosystems

Plant and Animal Relationships (Grade 2)
PRE: Lesson 1.1, Activity 3
CJ 1: Lesson 1.7 Activity 2
OTFA 7: Lesson 2.3, Activity 3
CJ 2a: Lesson 2.4, Activity 3
CJ 2b: Lesson 2.5, Activity 3
INV: Lesson 4.3, Activity 4 and Lesson 4.3, Activities 1–4 (S)
EOU: Lesson 4.4, Activity 3 (S)

CCC: Cause and Effect

Pushes and Pulls (Grade K)
PRE: Lesson 1.1, Activity T
EOU: Lesson 6.3, Activity 1 (S)

Sunlight and Weather (Grade K)
PRE: Lesson 1.3, Activity 4
OTFA 13: Lesson 4.4, Activity 1
EOU: Lesson 5.6, Activity 1 (S)

Animal and Plant Defenses (Grade 1)
OTFA 3: Lesson 1.4, Activity 3

Light and Sound (Grade 1)
PRE: Lesson 1.1, Activity 1
OTFA 3: Lesson 1.4, Activity 3
OTFA 9: Lesson 3.6, Activity 1
INV: Lesson 4.1, Activity 3 (S)
EOU: Lesson 4.6, Activity 1 (S)

Changing Landforms (Grade 2)
OTFA 5: Lesson 2.4, Activity 2

Properties of Materials (Grade 2)
OTFA 8: Lesson 2.3, Activity 5
OTFA 16: Lesson 4.3, Activity 4
EOU: Lesson 4.4, Activity 2 (S)

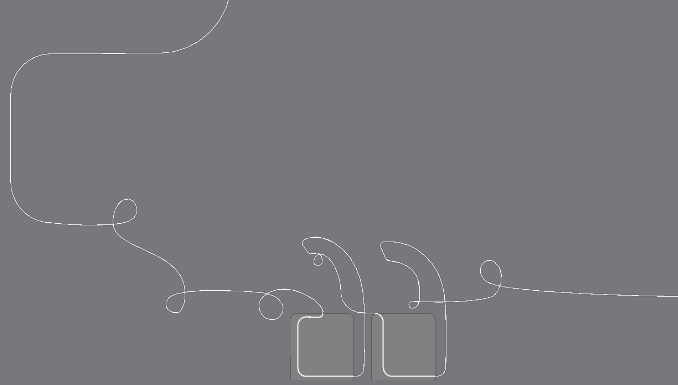
Generating grades

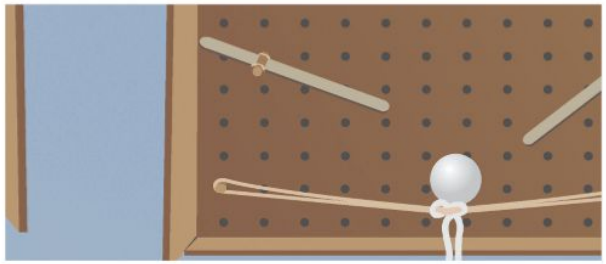
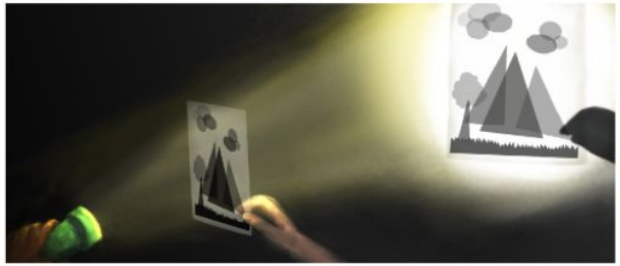
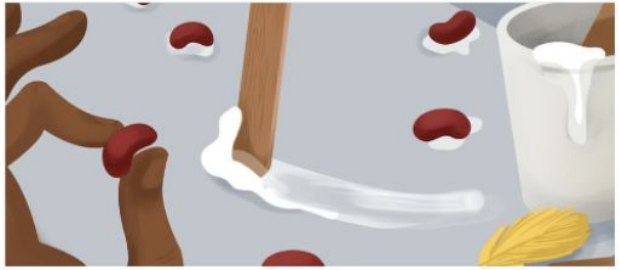
Group collaborative discussion

What are your district's grading requirements for science?

How will you use Amplify Science assessments to generate grades?

Questions?



Plan for the day

- Introduction
- Assessment System
- Progress Build
- Assessments
- Model Lesson
- Planning
- Closing

Pushes and Pulls

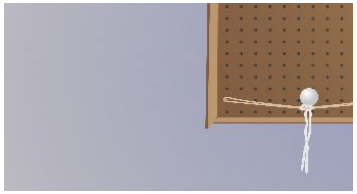
Problem: How can we create a pinball machine for our class?

Role: Pinball Engineers

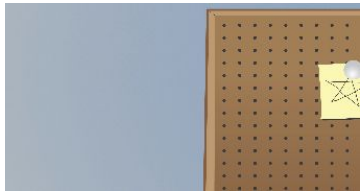
Students use their new understanding of the phenomena of force and motion to identify pushes and pulls more broadly in their lives.

Coherent Storylines

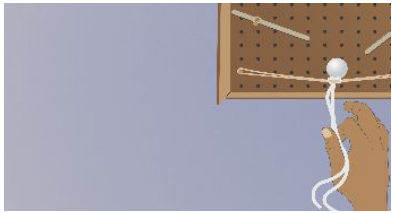
How do we make a pinball start to move?



How do we make a pinball move as far as we want?



How do we make a pinball move to a certain place?

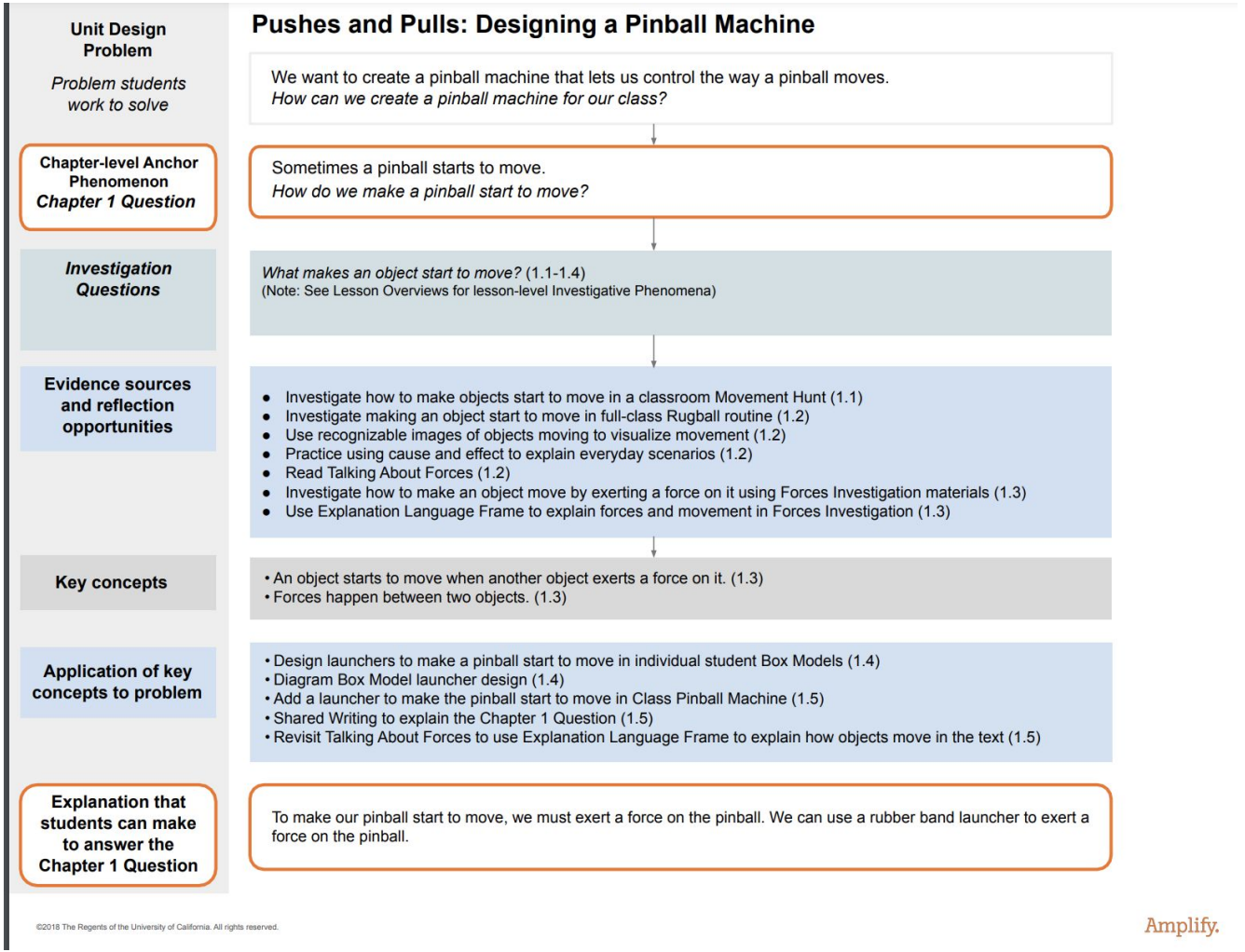


How do we make a moving pinball change direction?

How can we make the pinball machine do all the things we want it to do?

Coherence Flowchart

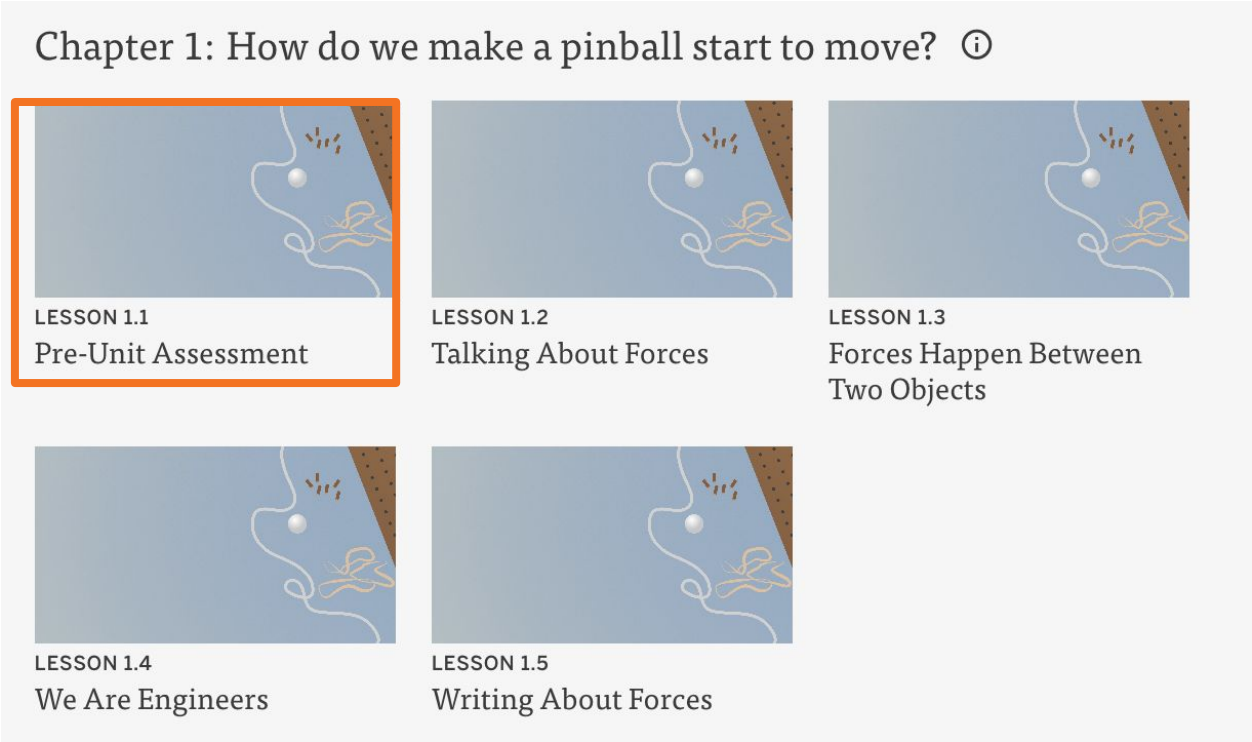
Chapter 1



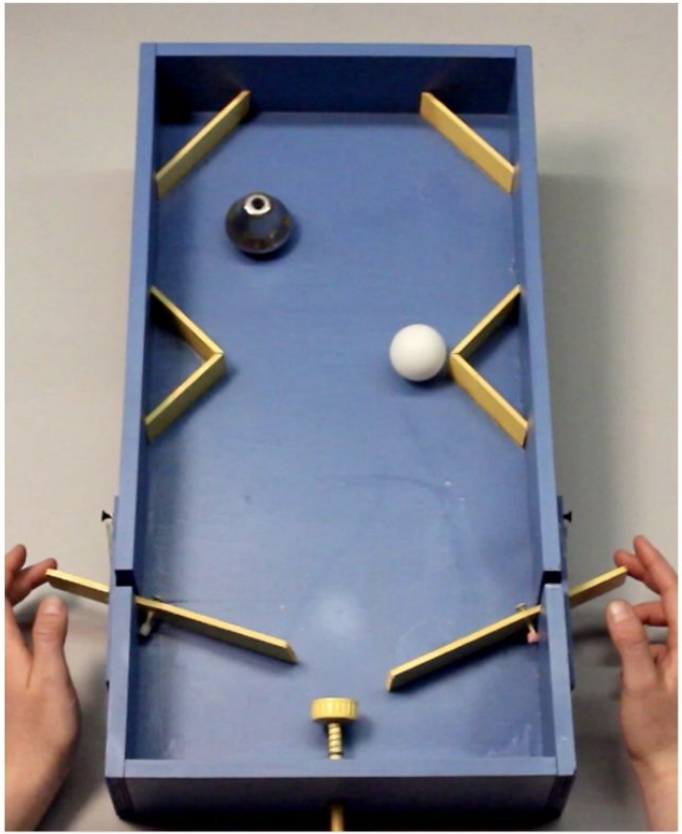
Amplify.

Modeling Matter

Leading up to our model lesson



Lesson 1.1



We will watch a video that shows **what pinball machines do.**

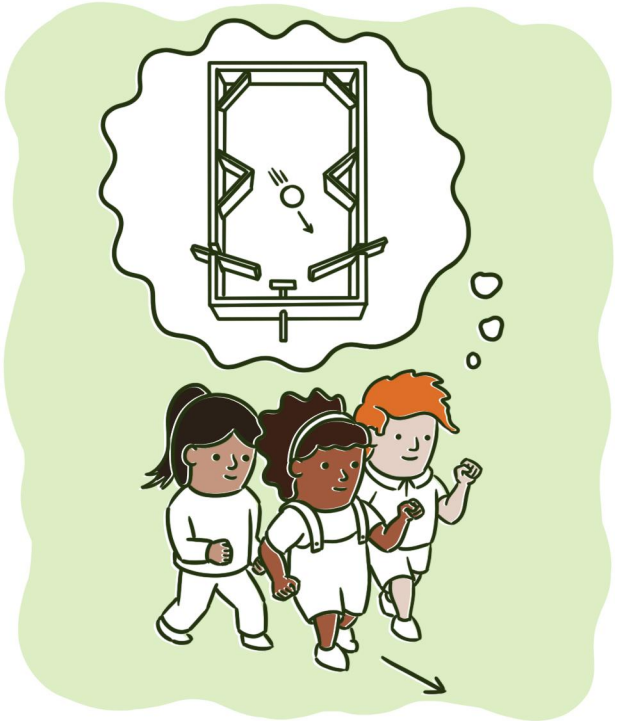
This will help us start thinking about how to make our pinball machine.

Using Our Bodies to Show How Pinballs Move

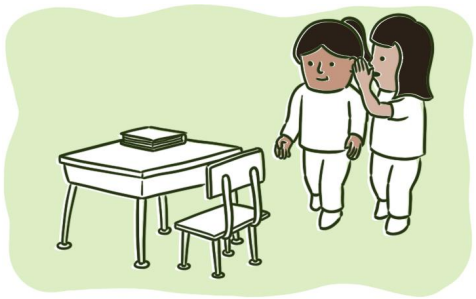
1.
Stand up so we can act out being a moving pinball in a pinball machine.

2.
Move to the left! Move to the right! Move forward! Move to the back!

3.
Take a seat.

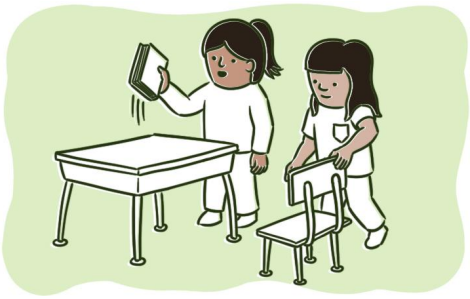


Movement Hunt



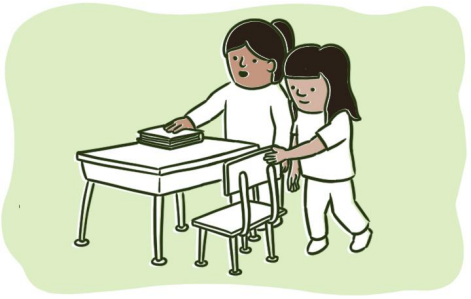
1.

Walk and whisper as you find objects you can move.



2.

Use only your hands. Make sure you are moving objects and not touching your classmates.



3.

Clean up! After you make an object start to move, put it back where you found it.

We are trying to figure out what makes an object **start to move.**

During the **Movement Hunt,** we made many objects start to move.

Investigation Question:

What makes an object start to move?

Modeling Matter
Lesson 1.2

Students will :
- *Investigate making an object start to move in full-class Rugball routine*
- *Use recognizable images of objects moving to visualize movement*
- *Practice using cause and effect to explain everyday scenarios*
- *Read Talking About Forces*

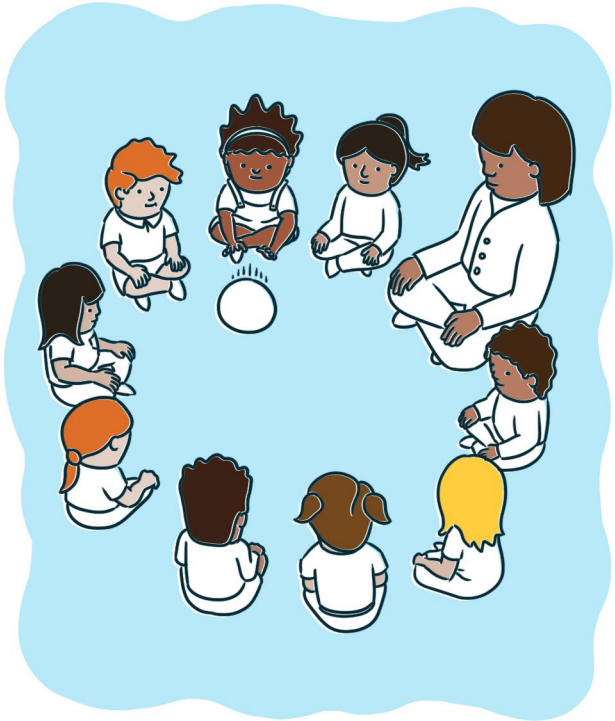
Playing Rugball: Introduction

We are trying to start moving the ball.

1.
Sit in a circle so everyone can see.

2.
Start the ball moving with a push—not a throw or a kick.

3.
Keep the ball in the circle. If the ball goes outside the circle, wait for the teacher to ask a student to get it.

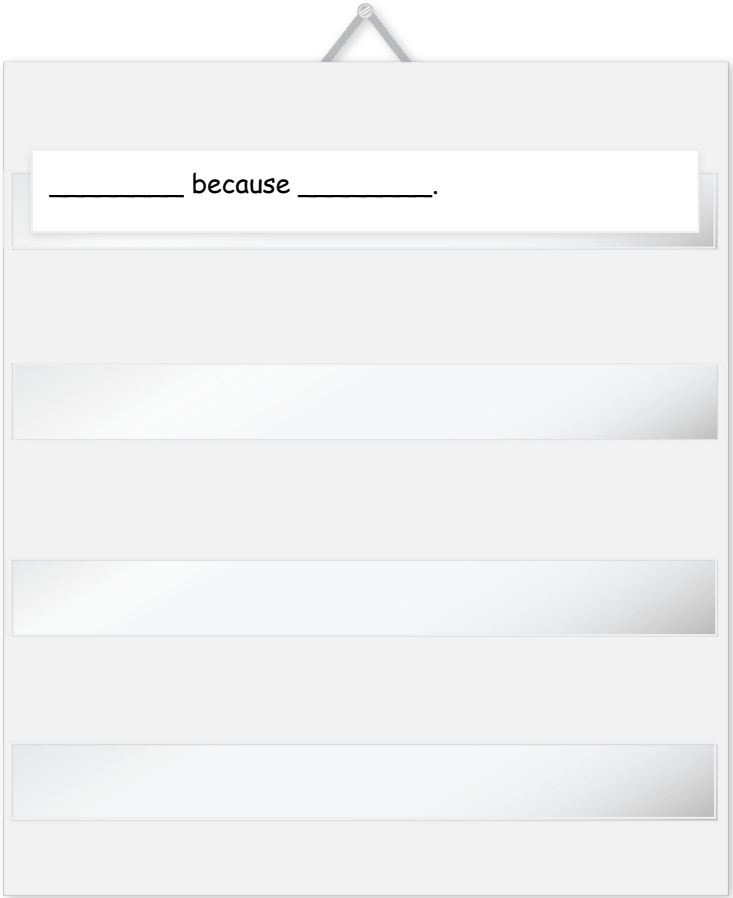


I will show you some more pictures. For each one, **visualize** what is happening.

Think about **what is moving,** and **what is making that object move.**

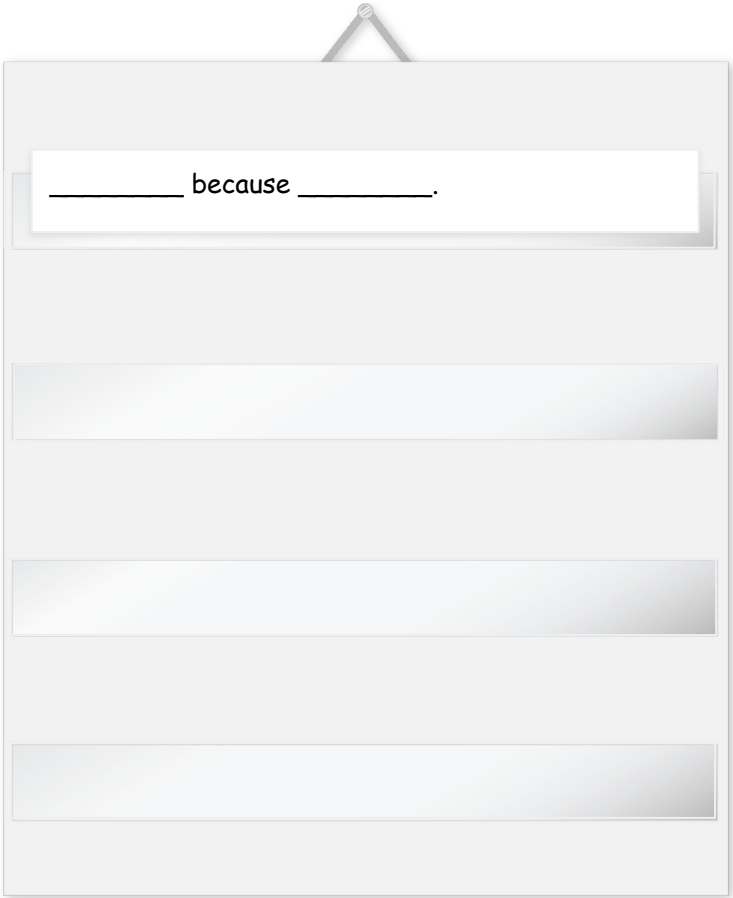
You can also **act out** out what is happening with your body.

I am going to **stand on one foot.** Watch my movements carefully.



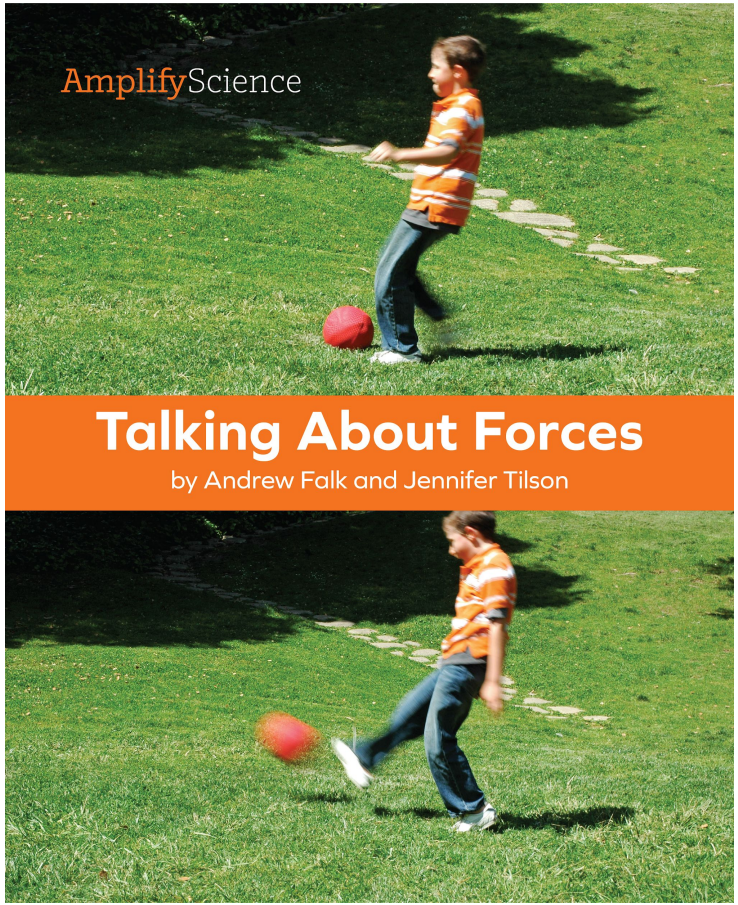
We can explain what happened and why with "because."

What happened when I tried to **balance?**



I tipped over **because** I stood on one foot.

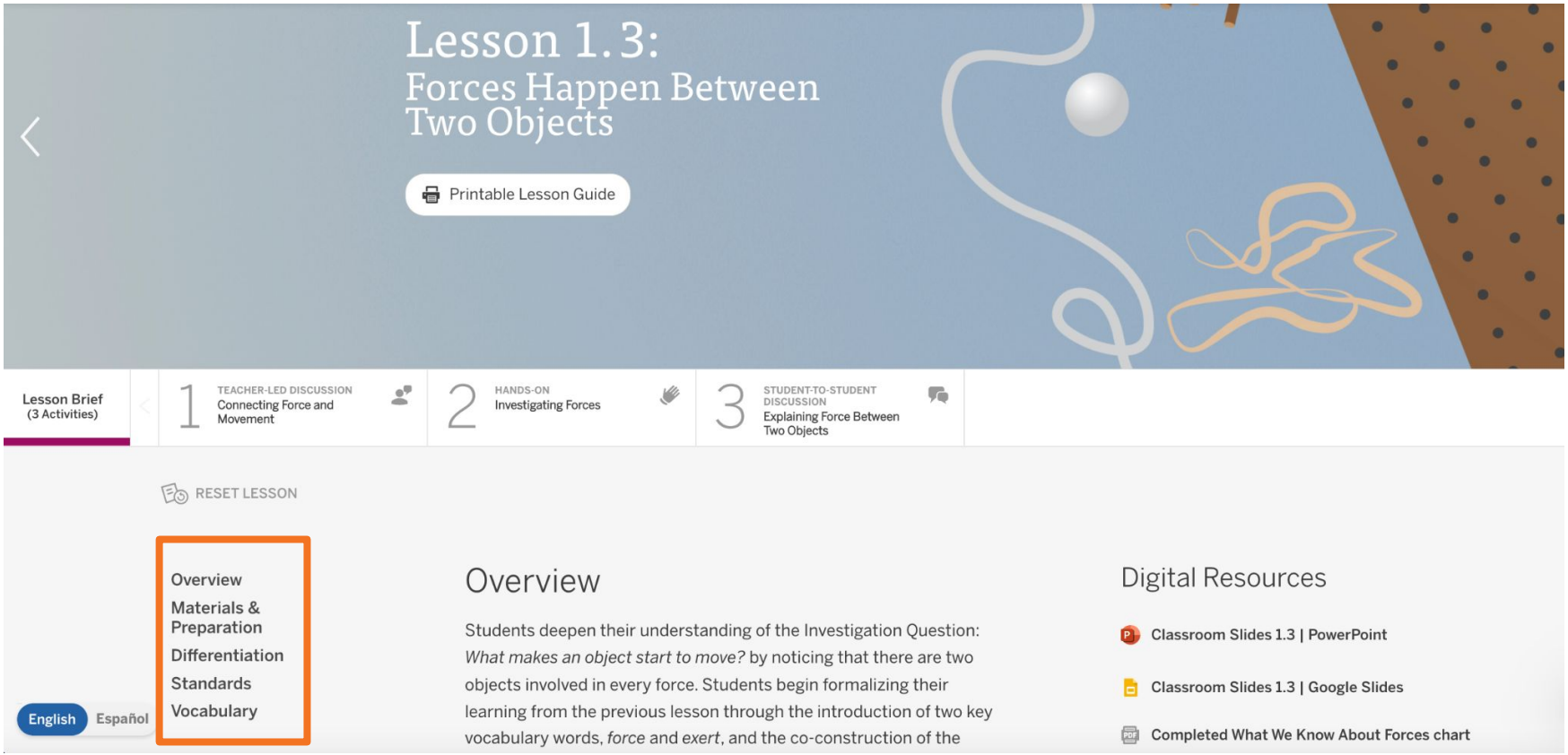
The word **because** means that the first part of what I said made the second part happen.



This book is called *Talking About Forces*. We will read to find out more about **forces.**

We will **visualize** what is happening in the pictures and words.

The Lesson Brief



Patterns of Earth and Sky

Materials for Lesson 1.3

For the Class

- Explanation Language Frame (from Lesson 1.2)
- Explanation Language Frames Cards: Set 1 (7 cards/set)
- What We Know About Forces Chart: Icon 1
- 1 plastic bag
- 1 shoelace
- 1 flat marble
- 1 large metal nut
- 1 wooden stick
- 1 pipe cleaner*
- 1 tissue or sheet of paper towel*
- 1 plastic cube (or other small math manipulative)*
- 4 sentence strips*
- 1 sheet of chart paper*
- pocket chart (or whiteboard)*
- marker*
- masking tape

For Each Pair of Students

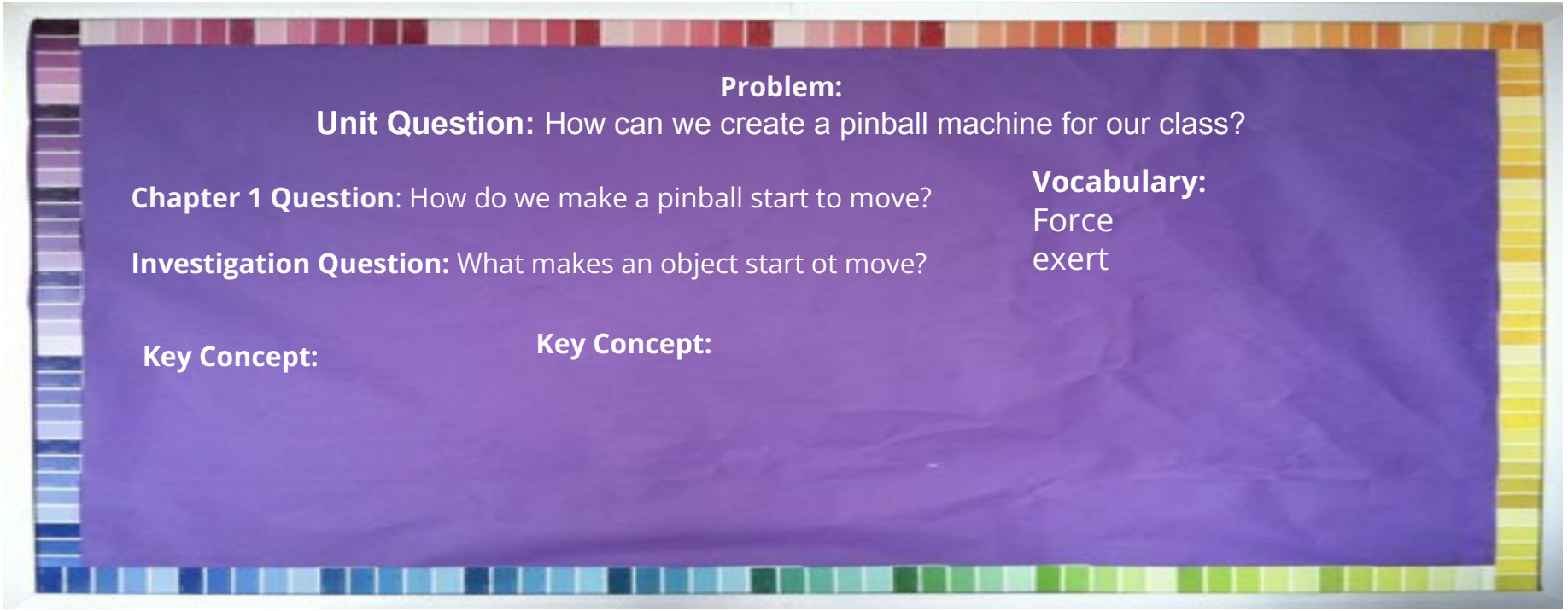
- 1 plastic bag
- 1 shoelace
- 1 flat marble
- 1 large metal nut
- 1 wooden stick
- 1 pipe cleaner*
- 1 sheet of tissue or paper towel*
- 1 plastic cube (or other small math manipulative)*

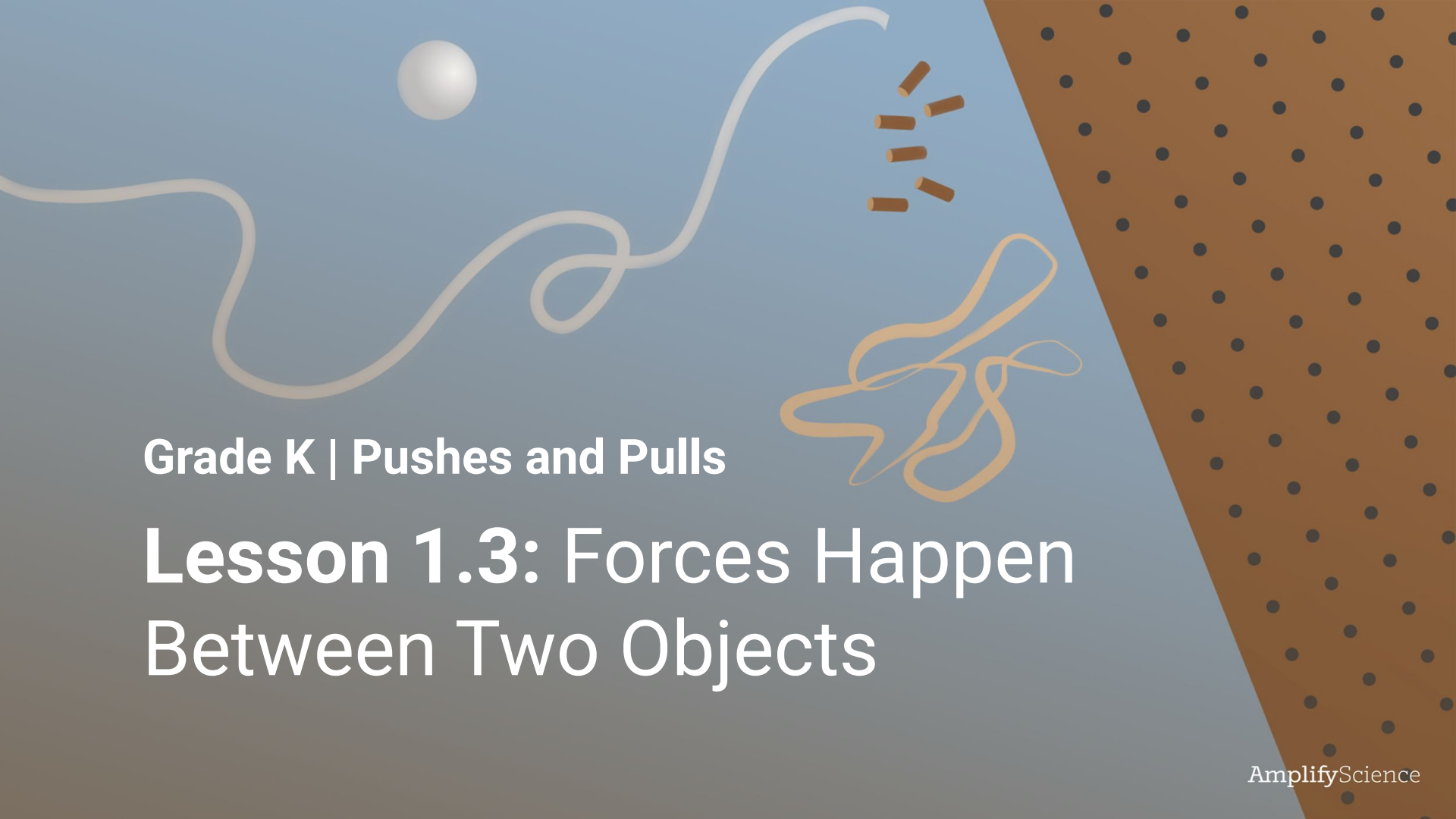
Modeling Matter

Classroom Wall

Partner Reading Guidelines

1. Sit next to your partner and place the book between you.
2. Take turns reading.
3. Read in a quiet voice.
4. Be respectful and polite to your partner.
5. Ask your partner for help if you need it. Work together to make sure you both understand what you read.





Grade K | Pushes and Pulls

Lesson 1.3: Forces Happen Between Two Objects

AmplifyScience

15 MIN

Activity 1

Connecting Force and Movement

Investigation Question:

What makes an object start to move?

Vocabulary

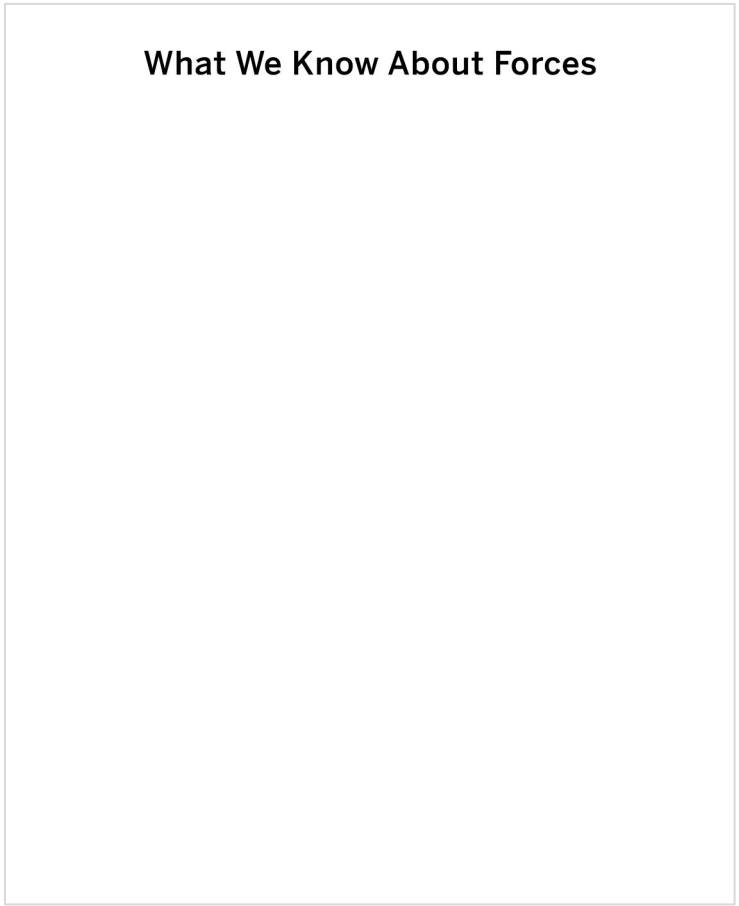
force

a push or a pull

Vocabulary

exert

to cause a force to act on an object



We will use the What We Know About Forces chart to keep track of our ideas about forces.

Let’s add our new ideas about **what makes objects start to move.**

What We Know About Forces

Force

push
pull
throw
kick
hit

start to move

We know that when one object makes something move, that object is **exerting a force.**

Key Concept

An object starts to move when another object exerts a force on it.

15 MIN

Activity 2

Investigating Forces

We now know an **object** starts to move when another object **exerts** a **force** on it.

We have already found many ways to exert a force with our bodies and hands.

Now we are going to see if we can create forces in other ways.

We will **investigate** with these objects. We will try to use one object to **create forces.**

I will show you how.

Use the **objects** to **create forces.**

15 MIN

Activity 3

Explaining Force Between Two Objects

What did you **observe** about how to make objects move?

What kinds of **forces** did you exert?

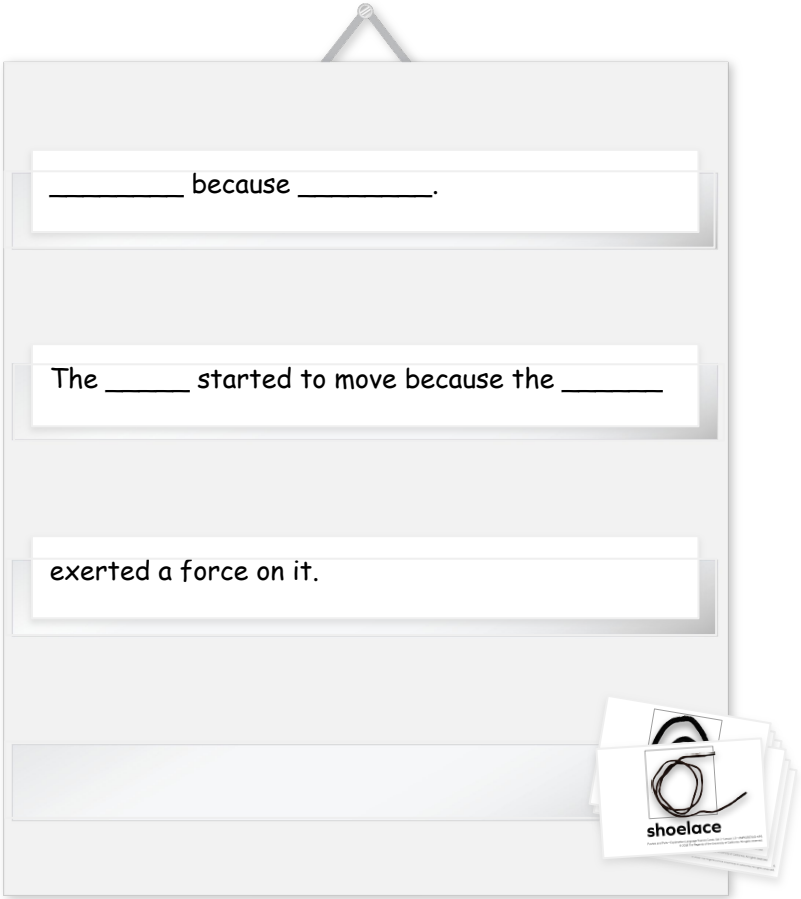
I noticed you used one object to make another object move.

Do you think you can make one of the objects move **by itself,** without anything touching it?

How?

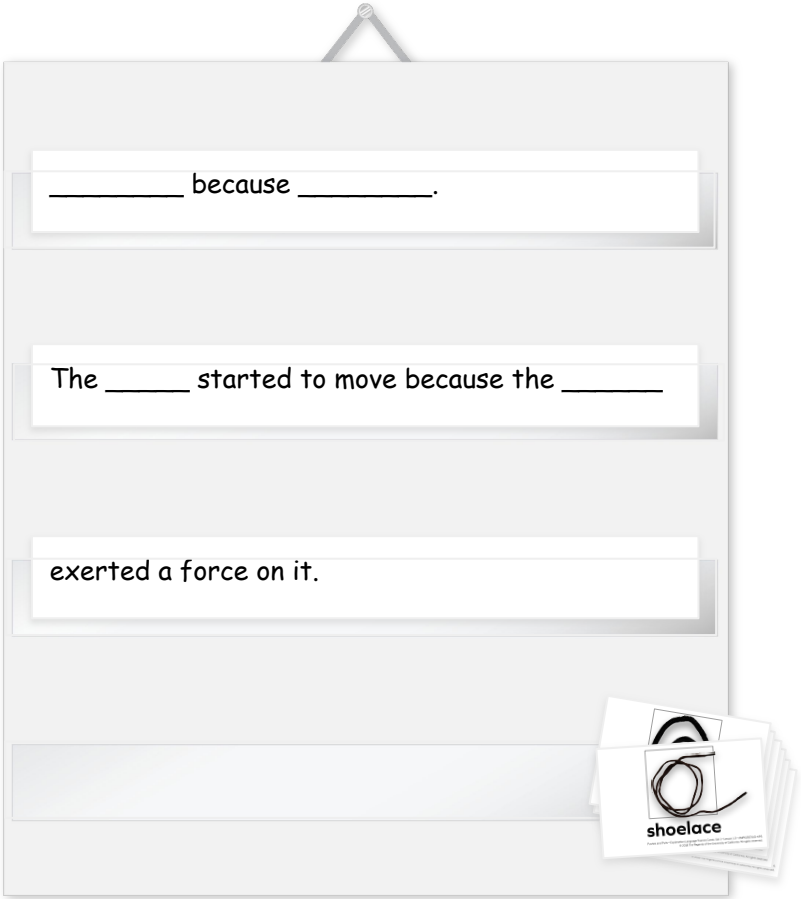
Key Concept

Forces happen between two objects.



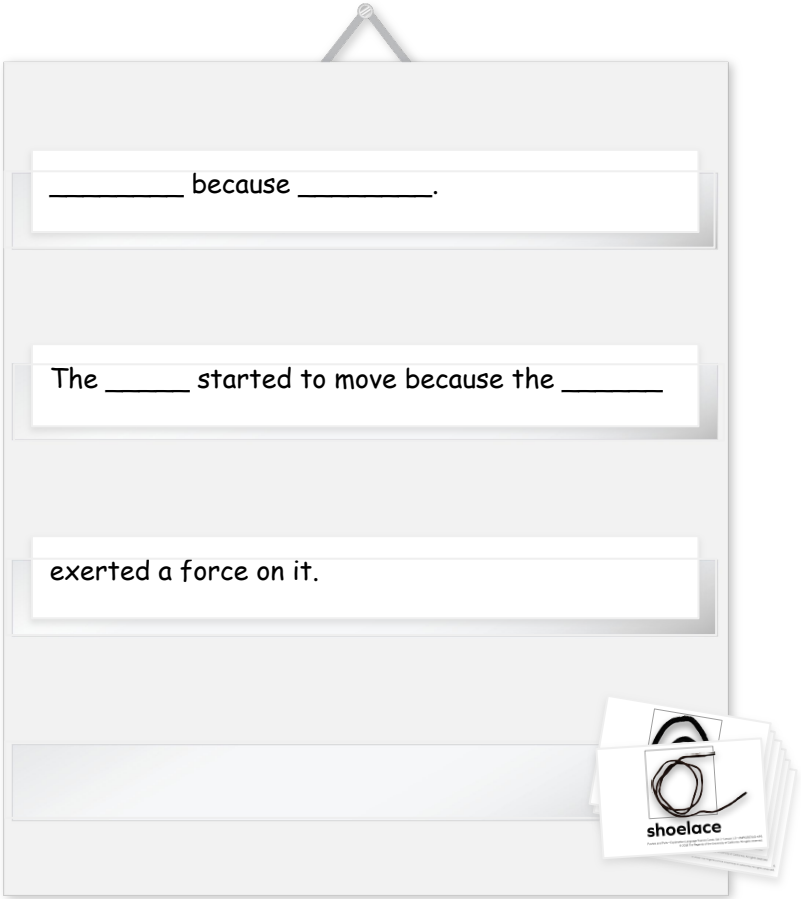
Scientists and engineers describe **what happened,** but they also want to explain **why it happened.**

These words will help us explain why something **started to move.**



Let’s work together to make sentences about **pairs of objects** from our investigation.

First, we will **visualize** what happened. Then we can **explain** it.



Make objects move again.

This time, **practice using these words** to explain what is happening.

End of Lesson

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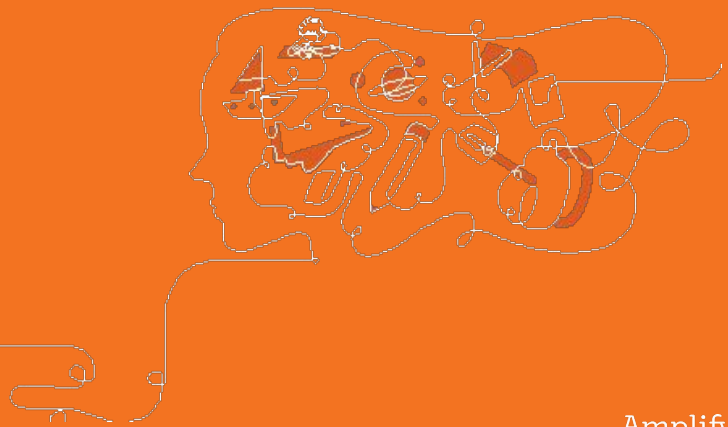
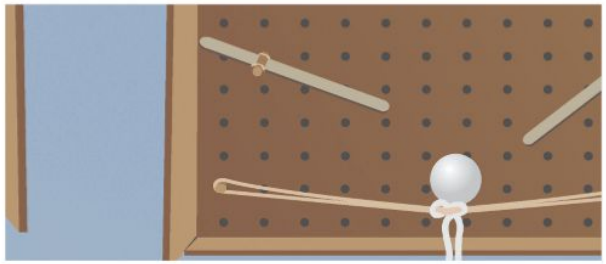
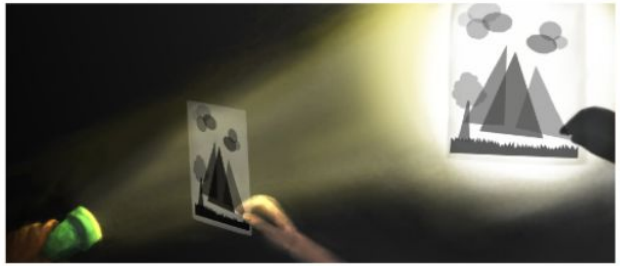
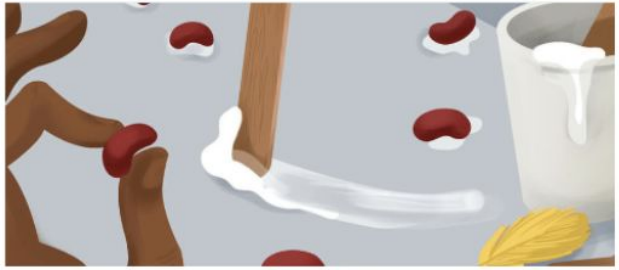
Break



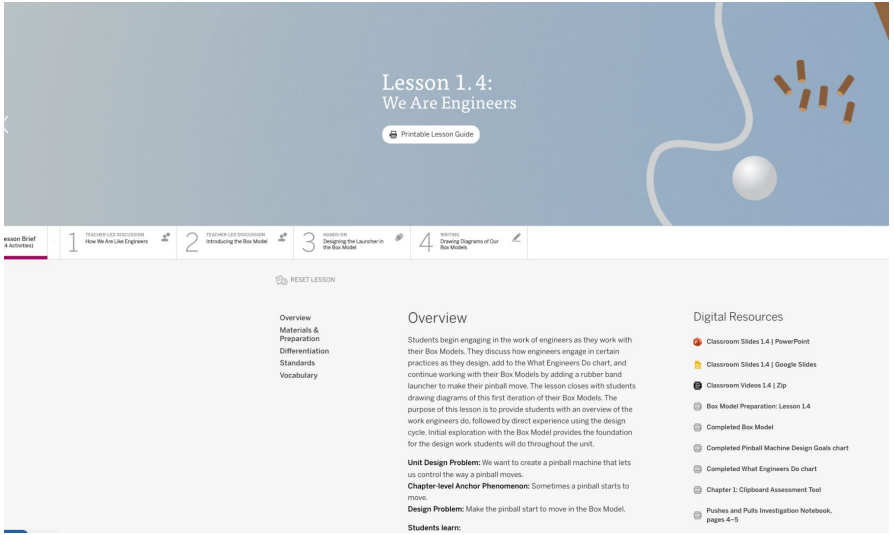




Plan for the day

- Introduction
- Assessment System
- Progress Build
- Assessments
- Model Lesson
- Planning
- Closing

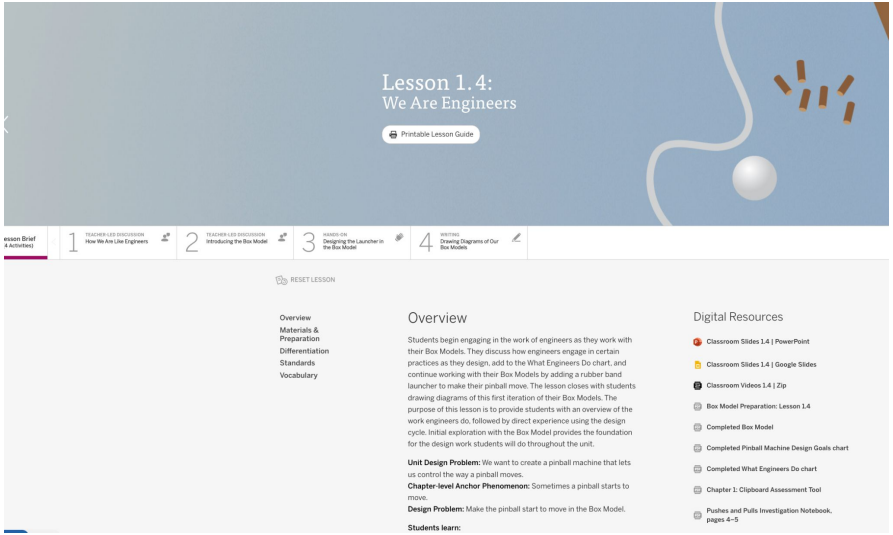
Work time - Planning

- Navigate to a lesson that you'll be teaching in the upcoming week that has a formative assessment opportunity (you might want to refer to the **Embedded Formative Assessment or Assessment System** documents on the Unit Landing Page)
- Review the assessment type and guidance



Work time - Planning

- Download and review the classroom slides
- Read the unit overview
- Read the Materials and Prep
- Read the differentiation
- Prepare any data collectors or assessment materials needed.

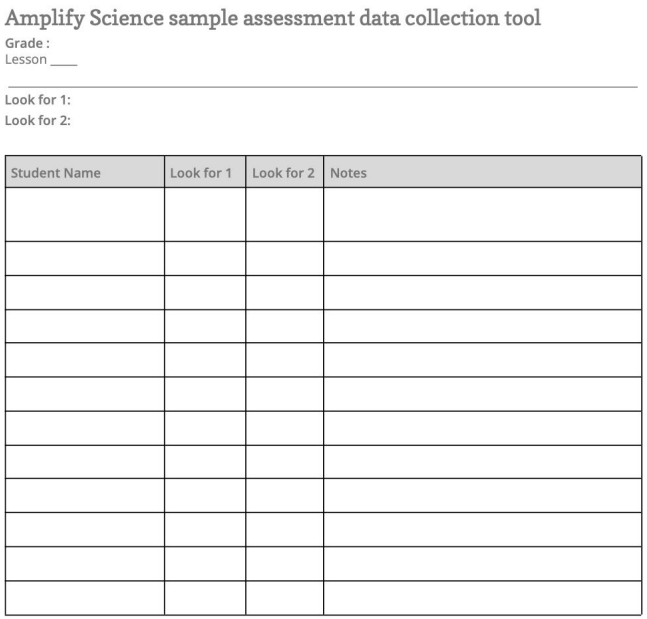


Work time - Planning

Pg. 17=18

Be prepared to share out the:

- Lesson chosen
- Type of assessment
- “Look Fors” or “Assess for Understanding”
- “Now What” or “Tailor Instruction”
- Personal observations or reflections



Amplify Science sample assessment data collection tool

Grade :
Lesson ____

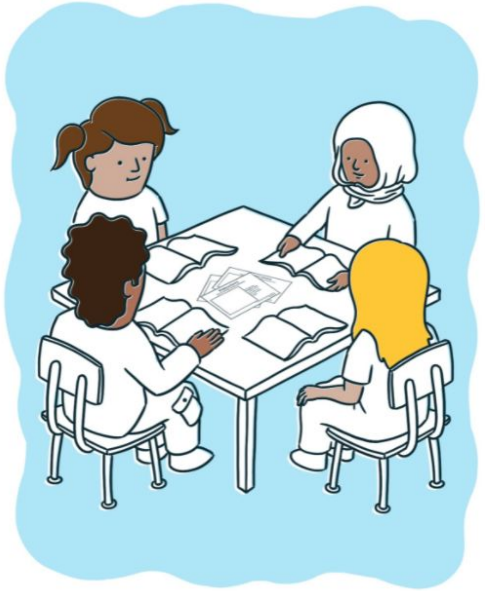
Look for 1:
Look for 2:

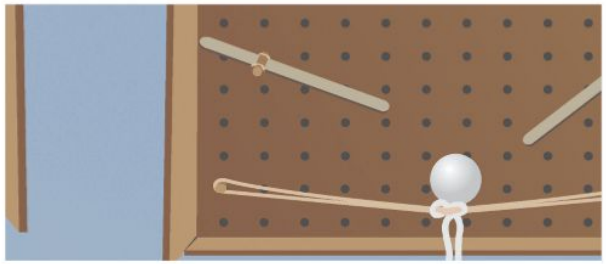
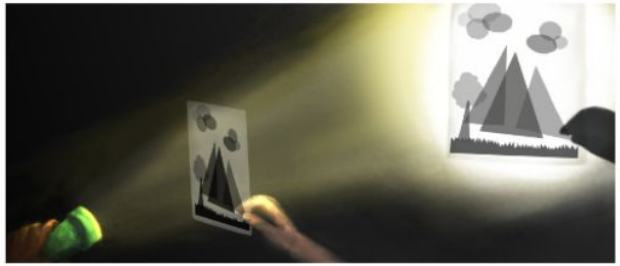
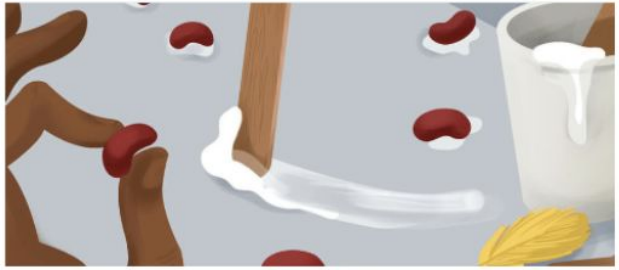
Student Name	Look for 1	Look for 2	Notes

Share Out

Share:

- Lesson chosen
- Type of assessment
- “Look Fors” or “Assess for Understanding”
- “Now What” or “Tailor Instruction”
- Personal observations or reflections



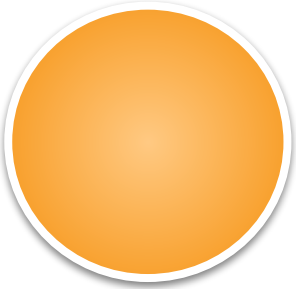
Plan for the day

- Introduction
- Assessment System
- Progress Build
- Assessments
- Model Lesson
- Planning
- Closing

Closing reflection

Based on our work today, share:

1-3 big points you're taking away from this session

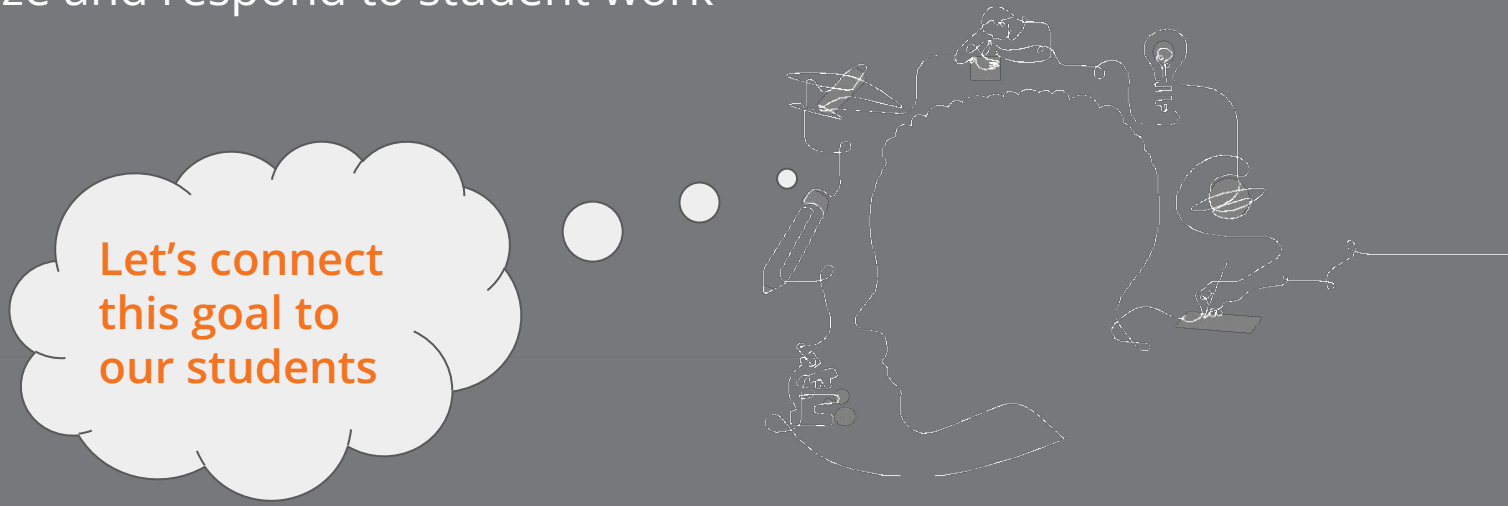


A question or topic that's still circling in your mind

Something that's "squaring" (resonating) with you from this session

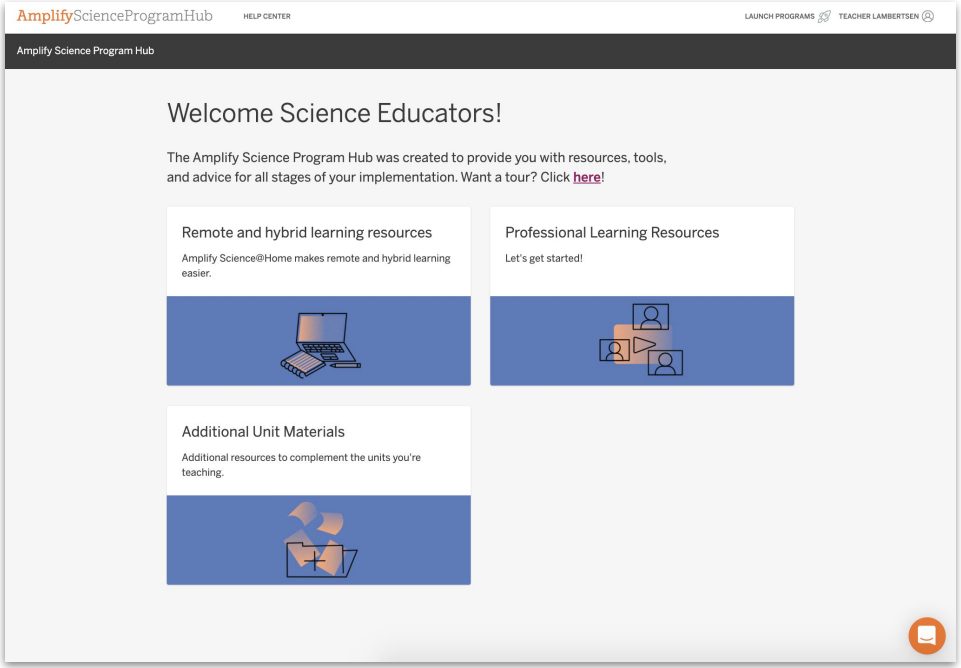
Overarching goals

- ☑ Describe the structure and purpose of the Amplify Science Assessment System
- ☑ Plan for the strategic use of assessment resources to analyze and respond to student work



Program Hub

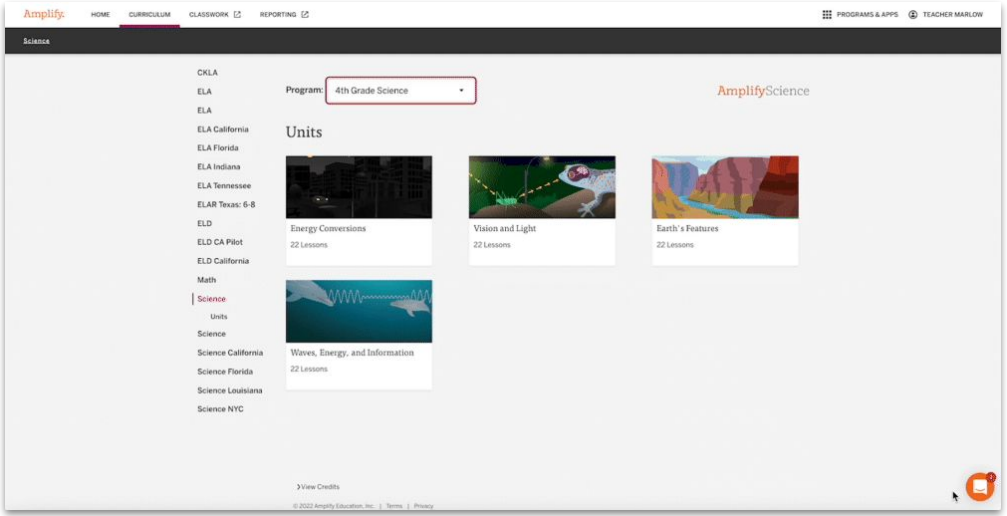
- Unit overview videos
- Planning tools
- Remote and hybrid learning resources.



Additional resources and ongoing support

Seek information specific to enrollment and rosters, technical support, materials and kits, and teaching support.

Amplify Chat



Please provide feedback!

Type:

Strengthen

Session title:

The Assessment System K-5

Professional Learning Specialist name:

Insert name

(insert email, if you would like)