FAST FORWORD®
LITERACY

AI ASSISTANT
Teacher Manual

Contents

Goals/Objectives

|	
English Language Arts Standards	Conventions of Standard English: students will be able to demonstrate command of the conventions of standard English grammar and usage Vocabulary Acquisition and Use: students will be able to determine or clarify the meaning of unknown and multiple-meaning words in phrases, choosing flexibly from an array of options

Language/ Reading Skills	Students will be able to...
	• demonstrate understanding of English grammar and usage elements such as:
	  ○ adjectives, comparatives, quantifiers
	  ○ singular/plural nouns and verbs
	  ○ possession
	  ○ simple negation
	  ○ subject-verb agreement
	  ○ pronouns
	  ○ verb tenses
	  ○ prepositions
	  ○ active/passive voice
	  ○ clauses
	• demonstrate understanding of vocabulary in terms of meaning, phonological structure, and grammatical role
	  ○ use sentence-level context as a clue to the meaning of a word or phrase
	  ○ use frequently occurring affixes as a clue to the meaning of a word
	  ○ use frequently occurring root words (e.g., look) and their inflectional forms (e.g., looks, looked, looking)

Cognitive Skills	Students will be able to… • hold a sentence in working memory while retrieving picture-concept associations from their long-term memory to identify the correct response (memory) • use word order to comprehend simple and complex sentences (sequencing)
Social-Emotional/ Executive Function Skills	Students will be able to... • selectively focus and sustain attention on a lesson or an activity • inhibit impulsive responses • regulate emotional responses: e.g., excitement or frustration

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Exercise Screen
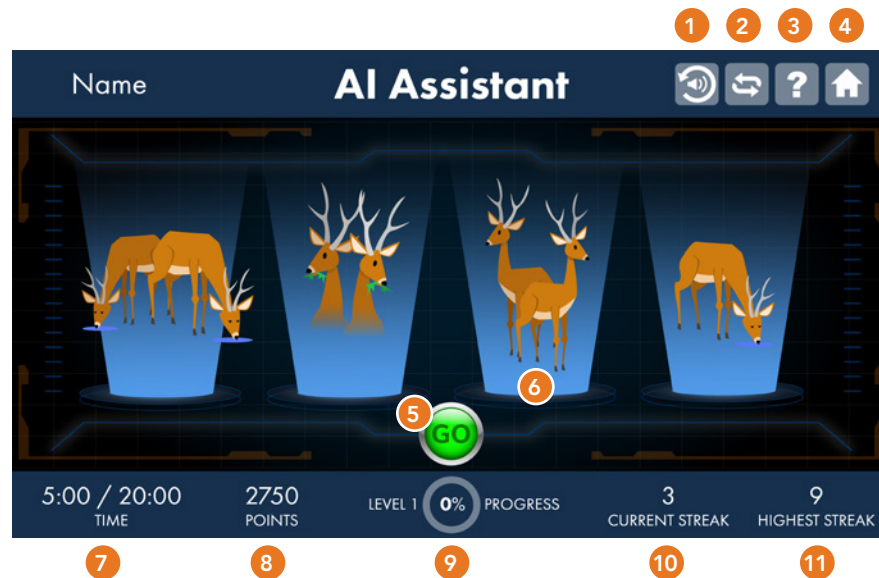
1 Replay
Repeats the sentence to be answered.

2 Autoplay
Turns Autoplay on or off; when "on" each click of the Go button presents a series of three or more questions.

3 Help
Provides access to Help options:
- **How to** replays initial instructions and models how to answer a question.
- **Progress** displays progress for each level and the entire exercise.

4 Home
Returns the student to the Exercise Selector screen.

5 Go
Presents a question or an Autoplay sequence of questions. When an Autoplay sequence is in progress, this counter shows how many questions remain.

6 Response Buttons
The student clicks the picture that most accurately represents the sentence.

7 Time
Shows Time Worked / Time Scheduled for the exercise.

8 Points
Shows total points awarded across all of a day's sessions.
- Correct answers: 2 points for each correct answer
- Autoplay bonus: double the usual points if all questions in a set are answered correctly.

9 Level Progress
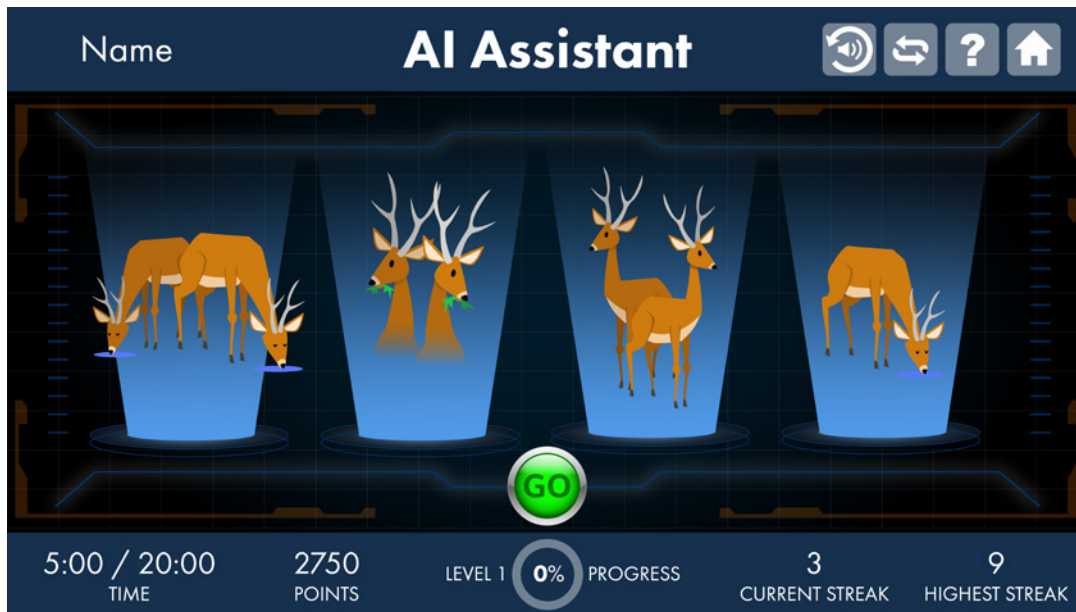Displays the current level and percent completion of the level.

10 Current Streak
Shows the number of consecutive correct answers since the last incorrect answer (or since the beginning of the session, if no answers have been incorrect).

11 Highest Streak
Shows the highest number of consecutive correct answers in this session.

Task

The exercise presents a holographic device with four empty platforms.

- Clicking the Go button activates the device.
- Two to four pictures appear on the platforms.
- The student hears a sentence.
- The student clicks the image that best represents the sentence.
- Corrective feedback is presented.
- The set of images disappear, setting the stage for the next sentence.

Content

Speech Processing Levels

Students progress through five speech processing levels in the exercise. In the early levels, AI Assistant presents questions and sentences in which the speech sounds have been digitally altered. As students progress through the exercise, the processing decreases, and eventually the sentences are presented using natural speech.

Icon Key

- 🔊 Audio
- ⬇ Download
- EL English Learner
- ✔ Quick Check
- ⚙ Settings
- ▶ Video

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Content

Language Structures

Within each processing level, AI Assistant covers a range of grammatical content that includes:

Language Structure	Example
Object Pronouns: Him & Her	Point to "him."
Description Words	Which is "heavy"?
Action Words	Which is "eat"?
Predicative Adjectives	The tub is full.
Comparative with More	Which one is more prickly?
Comparative with -er	Which one is bigger?
Quantifier: None	Look at these bowls with goldfish. Which bowl has none?
Quantifier: Some	Look at the boxes with carrots. Which box has some?
Singular Nouns	Choose the picture of the dog.
Plural Nouns	Choose the picture of the dogs.
Singular Nouns with Quantifier: A	Choose the picture of a dog.
Plural Nouns with Quantifier: Some	Choose the picture of some dogs.
Singular Auxiliary Verb: Is	The sheep is eating.
Plural Auxiliary Verb: Are	The sheep are eating.
Singular Verbs	The sheep eats.
Plural Verbs	The sheep eat.
Possession: Has	The cat has stripes.
Possession: Apostrophe-s	Which is the baby's bird?
Wh- Object Questions	What is the dog chasing?
Who vs. What	Who is by the door?
Simple Negation	The box is not open.

| Language Structure	Example
Third Person Subject Pronouns	She is walking.
Active Voice	The cat is following the dog.
Passive Voice	The dog is being followed by the cat.
Passive Voice with Negation	The cat is not being followed by the dog.
Present Tense	The boy is opening the box.
Past Tense	The boy opened the box.
Future Tense	The boy will open the box.
Preposition: For	The box is being carried for the doctor.
Preposition: With	The box is being carried with the doctor.
Complex Negation	The dog that is not running is big.
Object Relative Clauses	The cat is chasing the dog that is big.
Object Relatives with Relativized Objects	The cat is following the dog that the mouse is leading.
Subject Relative Clauses	The dog that is black is following the cat.
Reduced Subject Relative Clauses	The teacher smiling is helping the girl.
Sentences with Subject Relative Clauses and Noun-Verb-Noun Endings	The dog that is following the cat is black.
Sentences with Reduced Subject Relative Clauses and Noun-Verb-Noun Endings	The girl helping the teacher is smiling.
Relative Pronouns with Double Function	The cat that the dog is following is black.
Sentences with Double Embedding	The dog that is following the cat that is black is white.
Cleft Sentences	It's the dog that the cat chases.

Content

AI Assistant Progression

Students do not work on all types of grammatical content in each processing level. AI Assistant adapts to students' performance introducing new content and removing mastered content, ensuring that students move through the content at an appropriate pace, while focusing on the content that is challenging.

Motivational Levels

After each 20% of progress through the exercise, students "level up" and the screen changes slightly. These motivational levels are not connected to specific processing levels or content, only to percent completion.

Level 1	Level 2	Level 3	Level 4	Level 5
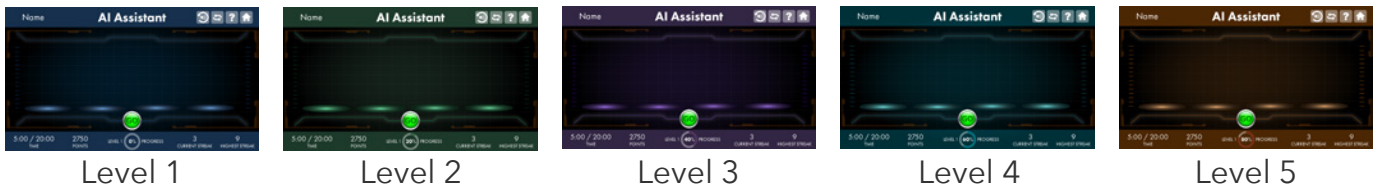
Targeted Practice

This exercise uses built-in, responsive technology to detect when a student is struggling and administer targeted, inline instruction—right when the student needs it—without any external resources or assistance required. This helps reduce frustration as it quickly gets students back on track, so they can continue making progress.

AI Assistant provides a variety of targeted practice activities when needed. The student can receive 1 or 2 of these interventions at a time, depending on the task and the student's prior performance. Each intervention takes a few seconds to minutes to complete. The student's progression in the exercise stops temporarily while working through an intervention, then resumes when the student returns to the regular exercise content.

One type of intervention is a picture exploration activity where students are asked to click different parts of a picture, in response to specific questions. Students are provided immediate feedback as to whether their answer is correct or incorrect, followed by additional questions on the concept.

> Answer the question by clicking part of the picture.

> Who is taking a photo? Who is posing for the photo? Who is smiling?

Did you know?

Reading comprehension is a complex skill that requires students to recognize individual words, access their meanings, and interpret grammatical structures—simultaneously! Readers must also draw on their background knowledge, in order to understand the message that the print conveys. Cognitive skills such as working memory are essential for keeping track of and integrating these various strands of information. Skilled reading demands that students construct a coherent and integrated mental representation of the text based on these many skills.

The AI Assistant exercise helps students become skilled readers by developing their understanding of the relationship between words, grammar, and meaning (language structures). It also helps increase the speed at which they identify and understand rapid, successive changes in sound (listening accuracy).

Students will see a variety of grammatical structures, but the following are some of the most common:

Subject-Verb Agreement: a singular subject takes a singular verb:

> The child — is smiling.

A plural subject takes a plural verb:

> The children — are smiling.

Passive-Voice - Negative: We use the passive voice when the subject is not important or when we do not know the subject. A sentence in the passive voice focuses on the action. To negate a sentence in passive voice, put "not" after the helping verb:

The window	was	not	broken	by	a rock.
subject	helping verb	negative	verb past participle	preposition	agent of the action

Subject and Object Relativization: in sentences with reduced subject relative clauses and noun-verb-noun endings, information related to the sentence topic is put into the middle of the sentence to give the reader more information and make clear distinctions:

The girl	helping the teacher	is smiling.
reduced subject relative clause		predicate

> Which girl is smiling? The girl who is helping the teacher.

The ending "teacher is smiling" can make this type of sentence especially confusing. Students who don't recognize the role of the reduced subject relative clause may misinterpret this sentence as "the girl is helping and the teacher is smiling."

Exercise Overview

Acoustically Modified Speech

Have you ever worked with a student who had modifications for additional think time, extra wait time, or for teachers to speak more slowly? All of these modifications provide the student with extra time to make sense of information, also known as processing time. For students who struggle with processing speed, and for those learning a new language, slowing down the rate of speech and emphasizing specific sounds can help them develop accurate phonological representations while increasing comprehension.

Fast ForWord's acoustically modified speech technology—sometimes referred to as "glasses for the ears"—slows and emphasizes speech sounds so that students can hear all sounds in a word.

This technology can even stretch out sounds that are physically impossible for human speakers to stretch on their own.

> **"Why does everything sound so strange?"**

Some speech sounds, such as the /b/ sound in the word "bat," have very fast transitional elements. When we say them aloud, these elements are easy to miss, but slowing them and emphasizing them (by presenting them at a higher volume) helps the brain process and respond to them more quickly.

The modified words and syllables in the Fast ForWord exercises may sound strange or mechanical to those who process sounds quickly. But for students who need a little extra time, the modified sounds and words will be easier to identify than natural speech. As students progress, the stretching and emphasis are reduced, pushing the brain to process at faster and faster rates until it can process natural speech.

▶ Why Does Everything Sound So Strange? (Student) in Student & Teacher Resources

▶ Why Fast ForWord Sounds the Way it Does (Teacher) in Student & Teacher Resources

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Introduce

Engage

When you're ready to introduce the exercise to your students, you can start by calling out how grammar impacts meaning. Say: Think of a time when you didn't hear something that someone said to you. What happened? Give an example, like: Have you ever played Simon Says? What happens if you don't hear or understand the instructions? Students can share what happens when they don't hear or understand directions or commands, with the idea being that they all come to the conclusion that you might miss something important if you aren't paying attention. Say: The same is true with this AI Assistant exercise; you have to be careful to pay attention to every word in the sentence and the order of the words.

Students will encounter subject-verb agreement tasks in AI Assistant, so it will be helpful to have students practice singular/plural subject-verb agreement rules before they begin. There's nothing like a good "Yes" question answered with a complete sentence to see if they understand subject-verb agreement.

For example, ask students: Does your friend like carrots? Do your friends like carrots? Write their responses on the board: "Yes, my friend likes carrots. Yes, my friends like carrots." Ask: Who is each sentence about? (my friend, my friends) Yes, 'my friend' and 'my friends' are the subjects of the sentences. Which is plural? Singular? What other word changes when you answer the questions and how does it change? (like > likes)

Encourage students to generate similar questions and repeat the activity. Continue the activity, but this time work with examples of irregular subject-verb agreement, especially subjects that are the same in both their singular and plural forms: *shrimp, salmon, squid, moose, deer, buffalo, aircraft, spacecraft,* etc.

Demo

1. Say: Today, we're going to practice identifying the picture that best answers a question or matches a statement. Together, we'll work on an exercise called AI Assistant. I'll get us started, and then I'd like for you to try.
2. Project the AI Assistant Introduction (English or Spanish) demo.
3. Describe the details you see in each picture.
4. Find the picture that best answers the question or matches the statement.
5. Explain why this is the best match, and how you ruled out the other options.
6. Click the correct picture.
   - Correct answer: a "ding" sound effect plays, the rollover light is replaced by a "golden glow" and points are awarded.
   - Incorrect answer: a "thunk" sound plays, the correct answer is highlighted with a white light, the incorrect answers are dimmed.
7. Keyboard shortcuts:
   - Go button: Space bar
   - Possible answers (left to right): Number keys 1-4

Direct students to log in and work individually on the AI Assistant Demo for approximately 10 minutes. This time period mimics the timing of the exercise once it's assigned. Debrief with students to ensure they understand the task and objective of the exercise. Ask, What did you notice? Have students share anything they have questions about.

AI Assistant includes instructional audio for the exercise introduction, instructions, and targeted practice. By default, these are presented in English. You can, however, select Spanish instructions for all, some, or individual students on the Manage page in mySciLEARN.

# Facilitate and Encourage

Monitor Student Progress

Review AI Assistant reports regularly to monitor student progress. Use the data to determine which students are succeeding and which students might be struggling to make progress.

Where to look...	**What to look for... what it means**

PROGRESS: Elements I Exercise Progress - AI Assistant

The colored line shows student progress and their percent complete. Each dot indicates a day the student worked on the exercise.
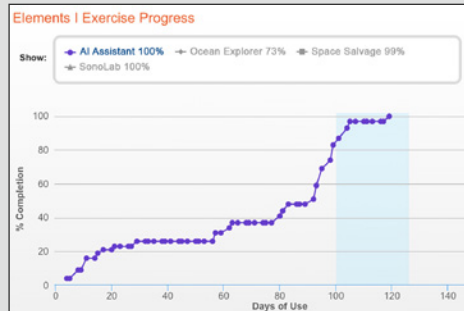
Is the line going up?
The student is completing content accurately and making progress.

Is the line flat across several dots?
The student may be struggling and you need to find out why.

Are there long lapses between dots?
The student may be skipping this exercise.

USAGE: Usage Details - Schedule

Do you see half-filled gray circles?
The student is working on this exercise, but not meeting the scheduled time. Make sure that they have time to complete their daily schedule. If fatigue is an issue, taking breaks is okay.

Do you see red circles?
The student is skipping this exercise. Provide support to help them re-engage.

USAGE: Usage Details - Minutes/Trials

Are many days highlighted in red?
The student is not meeting their daily schedule. Check the Schedule tab in this report to investigate further.

Is the student answering fewer questions than usual?
They may be distracted or losing focus. In comparison to their previous activity, a low number of trials to minutes may indicate the student is not applying themselves to the task.

Is the student answering more questions than usual?
They may be rushing. In comparison to their previous activity, a high number of trials to minutes may indicate the student is trying to amass points, or to progress more quickly, but rushing can result in mistakes. Ask them to turn Autoplay off. Remind them that making progress depends on accuracy, not speed.

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Where to look...

PROGRESS: Progress Details - AI Assistant
Completion Status

Completion Status	✕
✅ Advancement criteria have been met to complete this level	
🟥 Advancement criteria have not been met to complete this level	
🟩 Level is currently in progress	
⬜ Level has not been started	
	More help »

Percent Correct
To make progress, students must get around 90% correct on each level.

Number of Trials
The number varies depending on level. If a level must be repeated, the student may only be required to repeat a subset of the language structures, in which case the number of trials will be reduced.

Progress Details ❓ Expand All

▼ AI Assistant — Last Participation: 06/30/2020

Level	Completion Status	Percent Correct	Number of Trials
Processing Level 1	🟥	76%	90
	🟥	90%	60
	✅	100%	20
Processing Level 2	🟥	83%	140
	🟥	77%	69
	🟥	79%	53
	🟥	68%	38

PROGRESS: Errors - AI Assistant
Content the student is struggling with is indicated in red.

Errors - All Time ❓ Expand All

▼ AI Assistant

Errors Occurred in:	% Errors	Errors Out of Attempts
Action Words	7%	2 of 30
Example: Which is "eat"?		
Active Voice	37%	18 of 49
Example: The cat is following the dog.		

What to look for... what it means

Are there red bars under Completion Status?
When the student doesn't achieve a high enough percentage of correct answers they will repeat a level (or at least repeat those language structures they are struggling with). It is important to note how close the student is to meeting the advancement criteria. Often, simply explaining this to the student can result in more focused attention on the repeated level. If a student has to repeat a level several times, they may need more support.

Percent Correct - Is percent correct above 80%?
The student is close to the criterion for progressing (80% or 90% correct, depending on the question group). Encourage them to avoid mistakes by slowing down, thinking about each question, and using the Replay button.

Is the percent correct well below 80%?
The student may be struggling with one or more language structures. Go to the Errors section of this report to determine where the student needs additional support.

When a level is repeated, does the number of trials decrease?
This indicates that the student has mastered some language structures at this level, and is making progress.

When a level is repeated, does the number of trials stay the same?
The student has not mastered additional language structures. If their percent correct increases, this indicates that they are learning from their mistakes, and may just need more practice. Remind them to listen to and observe the corrective feedback to better understand "why" their answer was wrong before moving on to the next question.

Otherwise, go to the Errors section of this report which can help you determine where the student needs additional support.

Are specific language structures highlighted in red?
Consider providing the student with instruction on the specific vocabulary and/or language structures with which they are struggling.

The "Adjust Instruction/Intervene" section in this teacher manual provides suggestions for how to support students who might be struggling with AI Assistant.

⬇ Elements I Progress Monitoring Chart in Student & Teacher Resources

Facilitate and Encourage

Adjust Instruction/Intervene

Differentiation Activities

Differentiating instruction requires continually striving to know and to respond to each student's needs in order to maximize learning. Use the data in AI Assistant reports to adjust instruction to meet each student's needs and respond to variance among learners. The activities below are suggestions to support students who might be struggling with their progress in AI Assistant.

✔ **Does the student understand the exercise goal/task?**

Observe the student as they work through the exercise demo to determine where their understanding may be breaking down. Make sure the student clearly understands the task of the exercise. Ask: Can you tell me what this exercise wants you to do? If needed, explain how the exercise works. Say, The computer will ask you a question or make a statement. You must click the picture that best answers the question or matches the statement.

Listen along with a student while they work on the exercise. Say: Repeat the sentence back to me and explain why you would choose one picture over the others before you click the picture. This will help you identify if the student is having trouble with listening comprehension, paying attention, and/or understanding the vocabulary or grammatical concepts presented.

✔ **Are there words in the sentence that the student doesn't know?**

EL Engage the student in an offline activity, such as flashcards, that focuses on the specific vocabulary they are struggling with.

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Facilitate and Encourage

☑ **Is the student noticing the details in the pictures that provide clues to the correct answer?**

Discuss the importance of listening and looking closely at the details of each possible answer before choosing. Remind students that they can hear the sentence again by clicking the "Replay" button before answering.

While viewing a set of pictures in AI Assistant, say: It's important to notice little things about pictures. Ask questions relevant to the picture, such as, Who are the characters? What are the characters doing? What objects are shown? How could you describe the objects? Where do you think this scene might be taking place? What is happening in this picture?

(EL) Provide students with verbal sentence frames as needed: The character is _____. The object is _____. This picture is happening in/at/by/on _____. In this picture _____ is/are _____.

☑ **Is the student using their memory skills/capacities?**

Ask the student to repeat the sentence back to you. If they are having difficulty remembering sentences, here are some games to help build memory and focused attention. Give your student a 3 letter word to spell out loud. Then ask them to spell it backwards out loud. See if they can spell 4 or even 5 letter words backwards!

If the student can't spell yet, then you can play a following directions game like Simon Says. Both of these games help students to practice using their memory and attention skills while having fun which can build motivation and skills to improve progress in this exercise.

☑ **Is the student struggling with a specific language structure?**

Look at the Error Report to determine the specific language structure and provide an activity that focuses on the specific concept with which they are struggling.

Write out a sentence from the exercise and show the student how they can modify the sentence and still have the same meaning. For example, "The girl is being looked at by the tall boy." means the same as "The tall boy is looking at the girl."

Facilitate and Encourage

Adjust Instruction/Intervene

Student Resources

You may decide to use any or all of these monitoring sheets with your students:

Elements I Streaks & Completion Chart in <u>Student & Teacher Resources</u>
Explain to students that accuracy is the key to moving through the content in Fast ForWord. Because streaks record the number of correct answers in a row, this chart can help students self-monitor for accuracy. After they complete their exercises for each day, have students record their highest streaks and percent complete in each exercise, then challenge them to exceed those numbers tomorrow. Students will need one copy every 5 days.

Elements I Completion Chart in <u>Student & Teacher Resources</u>
Students can self-monitor their progress in each Elements I exercise by filling in the bar each day with their actual completed percentage. This provides students with an overall view of how much content they've completed compared to how much they have left to do. Students will need one copy.

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