



# SONOLAB

## Teacher Manual

### Contents

<b><u>Goals/Objectives</u></b>	<b>2</b>
<b><u>Exercise Overview</u></b>	<b>3</b>
<u>Exercise Screen</u>	<b>3</b>
<u>Task</u>	<b>4</b>
<u>Content</u>	<b>5</b>
<u>Targeted Practice</u>	<b>7</b>
<b><u>Facilitate and Encourage</u></b>	<b>8</b>
<u>Introduce: Engage and Demo</u>	<b>8</b>
<u>Monitor Student Progress</u>	<b>9</b>
<u>Adjust Instruction/Intervene</u>	<b>11</b>
<u>Differentiation Activities</u>	<b>11</b>
<u>Student Resources</u>	<b>12</b>

# Goals/Objectives

## English Language Arts Standards

Phonological Awareness: students will demonstrate an understanding of spoken words, syllables, and speech sounds (phonemes)

## Language/ Reading Skills

Students will be able to...

- identify speech sounds in a quick and efficient manner (phonological fluency)
- distinguish between syllables that differ by a single phoneme (phonological accuracy)

## Cognitive Skills

Students will be able to...

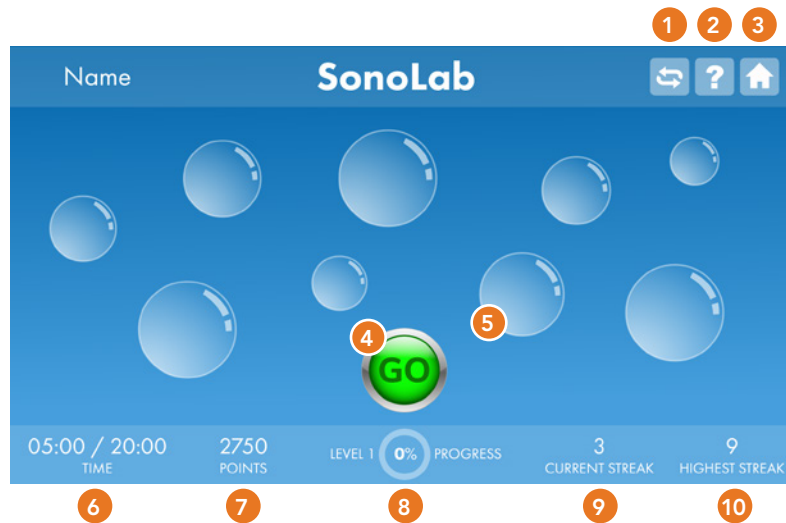
- rapidly process auditory details (auditory processing)
- remember speech sounds and recognize when a sound pattern has changed (phonological memory)

## Social-Emotional/ Executive Function Skills

Students will be able to...

- focus attention on a lesson or an activity
- refrain from making impulsive responses
- manage excitement and frustration

## Exercise Screen



### 1 Autoplay

Turns Autoplay on or off; when “on” each click of the Go button presents a series of three or more trials.

### 2 Help

Provides access to Help options:

- **How to** replays initial instructions and provides a model trial.
- **Practice** allows students to listen closely to the current stimuli and take practice trials without affecting their progress.
- **Progress** displays progress for each level and the entire exercise.

### 3 Home

Returns the user to the Exercise Selector screen.

### 4 Go

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

### 5 Response Buttons

Bubbles (or other objects) that are clicked when the user hears the syllable change. If the response is correct, the object disappears. When all objects have been cleared, the screen is refreshed with a new batch.

### 6 Time

Shows Time Worked / Time Scheduled for the exercise.

### 7 Points

Shows total points awarded across all of a day’s sessions.

- **Correct answers:** 2 points for each correct answer
- **Autoplay bonus:** 2 points for each correct answer, if all answers in an Autoplay sequence are correct.

### 8 Level Progress

Displays the current level and percent completion of the level.

### 9 Current Streak

Shows the number of consecutive correct answers since the last incorrect answer (or since the beginning of the session, if none have been incorrect).

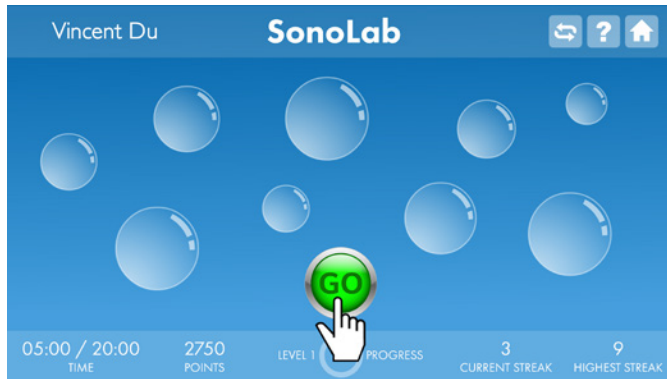
### 10 Highest Streak

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

# Exercise Overview

## Task

At the beginning of the exercise, students answer each question as follows:



Click the "Go" button to start the trial. The active bubble begins glowing and pulsing, while a series of syllables plays. For example, "ki-ki-ki-ki-gi."



Listen closely! As soon as the syllable changes, click the active bubble.

In each trial, the initial syllable is repeated from 3 to 8 times, before the syllable changes. When the syllable changes, the student must respond quickly. This combination of patiently waiting, then rapidly responding, helps students learn to stay focused and refrain from acting impulsively.

## 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

### Icon Key



Audio



Download



English Learner



Quick Check



Settings



Video

# Exercise Overview

## Content

Students progress through 6 sound sets. Each set is focused on a pair of syllables that differ by a single phoneme.

### SonoLab Progression

Within each sound set, students progress through 18 stages. Across these stages, the following changes occur:

- At first, the syllables are modified, so that they are easier to tell apart. This support is gradually reduced, until the syllables resemble natural speech.
- The maximum repetitions of the alternate syllable increases from 6 to 8, after Stage 9.
- The syllable presentation becomes more rapid. Time between the syllables (inter-stimulus interval; ISI) is reduced from 500ms to 300ms.
- The time allowed for a response is shortened.

SonoLab adapts to the students' performance within each sound set, moving them up and down between stages. Students also cycle between sets. A different set is presented at the beginning of each day, and/or when the student is struggling to progress. Each set is closed after its highest stage is passed.

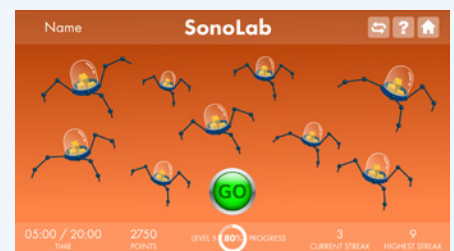
SOUND SETS	
Target Syllable	Alternate Syllable
/gi/	/ki/
/chu/	/shu/
/si/	/sti/
/ge/	/ke/
/do/	/to/
/ba/	/da/



Level 3



Level 4



Level 5

# 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](#)

## Did you know?

Phonological fluency affects reading fluency. If students are unable to quickly and easily distinguish between all the sounds presented in a word, they may mispronounce or misremember words in a passage. Building phonological memory and fluency with SonoLab can help students strengthen reading skills by training them to hear all of the sounds in a syllable or word.

**Phoneme:** the smallest unit of sound in a word. Phonemes include all the distinct units of sound (consonants and vowels) used by the speakers of a language: /b/ /a/ /t/.

**Syllable:** a cluster of sounds that includes exactly one vowel: *bat* = 1 syllable.

**Phonological memory:** the ability to hold speech-based information in memory. We rely heavily on our phonological memory when reading and spelling. Students with poor phonological memory are unable to remember and then repeat nonsense words of increasing length and complexity. They tend to forget parts of a word or confuse the sounds and/or sequence of sounds in a word.


**Phonological fluency:** the ability to identify and manipulate speech sounds quickly and efficiently, such as, distinguishing between the syllables /ba/ and /da/.


# Exercise Overview

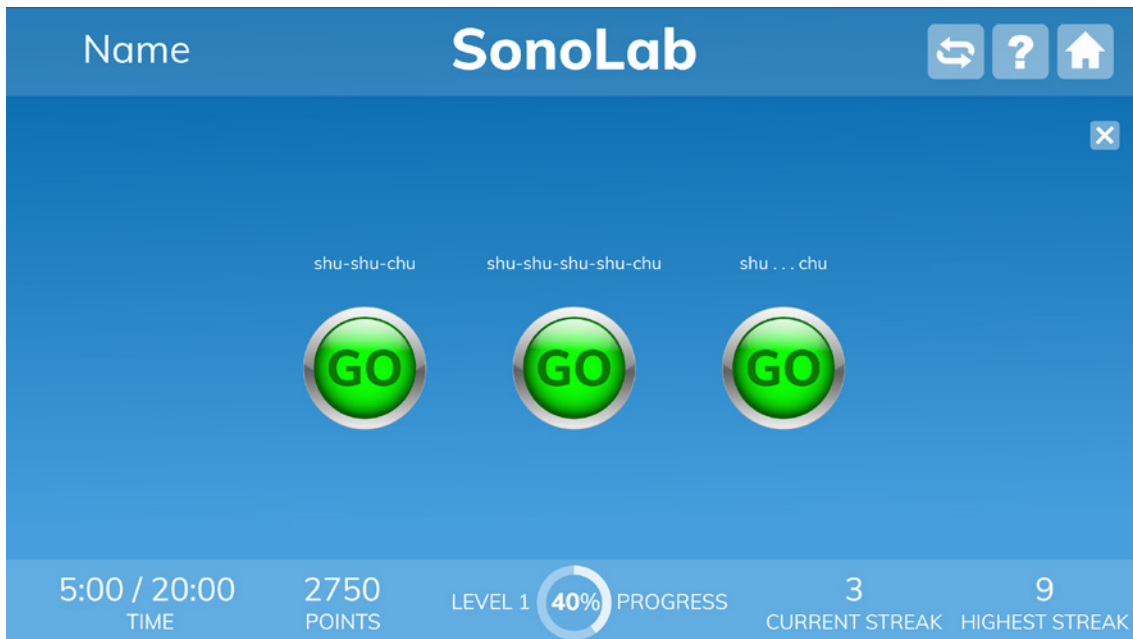
## Targeted Practice

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.

SonoLab provides a variety of in-product interventions, such as: explanations, easier questions, coaching and focus mode. One type of intervention, Practice Mode, allows students to review a sound set by actually practicing and getting feedback on their efforts, without earning points or having it affect their progress.

 The sounds in SonoLab may be hard to tell apart. Can you hear the difference?

 Click each of the Go buttons at least two times, listen for the sound that is different, and click as soon as you hear it.



The screenshot shows the SonoLab interface with a blue header. The title "SonoLab" is centered, and "Name" is on the left. On the right, there are icons for a refresh button, a help button, and a home button. Below the header, there are three sound patterns: "shu-shu-chu", "shu-shu-shu-shu-chu", and "shu...chu". Each pattern has a green circular "GO" button below it. At the bottom, there is a status bar with the following information: "5:00 / 20:00 TIME", "2750 POINTS", "LEVEL 1" with a "40% PROGRESS" indicator, "3 CURRENT STREAK", and "9 HIGHEST STREAK".

# Facilitate and Encourage

## Introduce

### Engage

To introduce the exercise to your students, you can start by explaining to students that they will be listening to two syllables that sound almost alike. Say: *In this exercise, you will be asked to choose between two syllables that sound almost alike, such as /ba/ and /da/. This seems like it should be very easy but these types of syllables can be difficult for our brains to tell apart, especially in some listening situations like in a noisy room, or when listening to someone who mumbles*

#### SOUND SETS

Target Syllable	Alternate Syllable
-----------------	--------------------

/gi/	/ki/
------	------

/chu/	/shu/
-------	-------

/si/	/sti/
------	-------

/ge/	/ke/
------	------

/do/	/to/
------	------

/ba/	/da/
------	------

*or who talks very quickly. If you don't hear these sounds clearly, you might misinterpret what someone is saying. For example, if you don't hear the difference between "my friend's bad" instead of "my friend's dad" you could be very confused about a situation.*

Students will encounter easily confusable pairs of syllables in SonoLab,

so it will be helpful to have students practice the sounds prior to working on the exercise. Explain how the exercise works. Say: *You will hear a series of syllables, and you will click an image on the screen when you hear the syllable change. We are going to practice listening to these sounds before you work on this exercise.*

1. Ask students to close their eyes and listen to you say the two sounds /ki/ and /gi/.
2. Have them repeat the sounds with you. Talk about changes in the shape of their mouth and jaw when they say each of the two sounds.
3. Block your mouth with your hand or a piece of paper (so that students can't guess an answer by reading your lips), or ask students to keep their eyes closed and listen carefully while you say /ki/. Ask the student to raise their hands when they hear the syllable change to /gi/.
4. Practice this same routine with the other sound sets.

### Demo

1. Say: *Today, we're going to practice listening for small changes in sounds. Together, we'll work on an exercise called SonoLab. I'll get us started, and then I'd like for you to try.*
2. Project the SonoLab Introduction (English or Spanish) demo.
3. Follow along with the demo, which explains how the exercise works.
4. Click the bubble when you hear a different syllable:
  - Correct Answer: the bubble pops, you hear a "ding" and the bubble disappears.
  - Incorrect Answer: if the bubble is clicked too early or too late, you hear a "thunk" and the bubble remains on the screen.
5. Keyboard shortcuts:
  - Go button: Space bar
  - Answer: Down arrow

Direct students to log in and work individually on the SonoLab 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 that they have questions about.



SonoLab 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

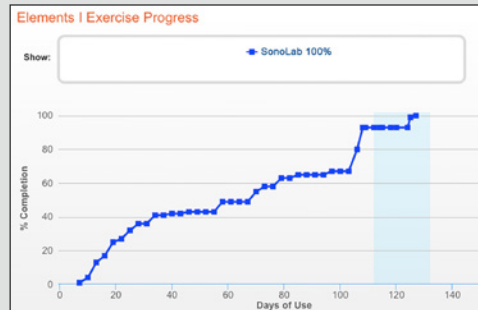
Review SonoLab reports regularly to monitor student progress. Use the data to determine which students are succeeding and which students might be struggling to make progress.

### Where to look...

### What to look for... what it means

#### PROGRESS: Elements I Exercise Progress - SonoLab

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

Schedule		Minutes/Trials		Start Time		Total Minutes	
Days of Use	Date	AI Assistant	Ocean Explorer	SonoLab	Space Salvage		
127	07/09/2020	○	○	○	○		
126	07/08/2020	●	●	●	●		
125	07/07/2020	●	●	●	●		
124	07/06/2020	●	●	●	●		
123	07/05/2020	●	●	○	○		
122	07/03/2020	●	●	○	○		
121	07/02/2020	●	●	○	○		
120	07/01/2020	●	●	○	○		

**Schedule**

See if the student has met their daily schedule, and check what's planned for the next few days:

- Time completed
- Time not completed
- Exercise Skipped
- Planned for day

#### Do you see gray circles partially filled?

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

Schedule		Minutes/Trials		Start Time			
Days of Use	Date	AI Assistant Min	Ocean Explorer Min Trials	SonoLab Min Trials	Space Salvage Min Trials		
126	07/08/2020	-	16 39	-	38	-	
125	07/07/2020	-	15 39	15 96	39	15	
124	07/06/2020	-	-	15 53	-	15	
123	07/05/2020	-	15 62	0	62	-	
122	07/03/2020	-	15 42	0	42	-	
121	07/02/2020	-	-	0	-	-	
120	07/01/2020	-	15 60	1 1	60	-	
119	06/30/2020	15	83 15 49	-	49	15	

#### 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 that the student is not applying themselves to the task.

#### Is the student answering more questions than usual?

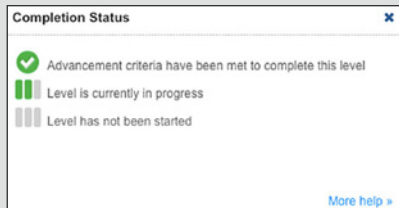
They may be rushing. In comparison to their previous activity, a high number of trials to minutes may indicate the student is trying to amass points, or to progress more quickly, but rushing can result in mistakes. Ask them to turn Autoplay off. Remind them that making progress depends on accuracy, not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

# Facilitate and Encourage

## Where to look...

### PROGRESS: Progress Details - SonoLab

#### Completion Status



#### Number of Trials

The number needed varies by level:

##### Training Level

Average range for students making good progress:

- 9 - 28

##### Standard Levels

Average range for students making good progress:

- /gi/ - /ki/: 60 - 170
- /chu/ - /shu/: 70 - 170
- /si/ - /sti/: 40 - 110
- /ge/ - /ke/: 40 - 150
- /do/ - /to/: 40 - 180
- /ba/ - /da/: 60 - 190

Level	Completion Status	Number of Trials
Training	✓	141
gi - ki	▬▬	49
chu - shu	▬▬	48
si - sti	▬▬	48

## What to look for... what it means

### Has the student taken too many trials without passing a level?

High performers can complete each level in fewer than 100 trials.

- A student who is still working on a level after more than 150-200 trials may be struggling.
- If a student has taken more than 200 trials, it is important to make sure the student is applying themselves and maintains their motivation and attention.
- When students reach content that is especially difficult for them, their progress will slow and completing a level will take more trials. At these times, monitor the student's progress graph and celebrate even small increases.

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



Elements | 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 students' needs in order to maximize learning. Use the data in SonoLab 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 SonoLab.



#### **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.



#### **Does the student frequently "miss" the correct answer because they have difficulty with timing and rhythm?**

Unlike many of the other exercises, this one requires a fast response time so timing is everything! Ask the student to tap their foot every time they hear the syllable repeated to help them improve their timing. If the student has trouble using a mouse or iPad consider switching to a keyboard and use the keyboard shortcuts. You may also ask the student to close their eyes while they listen to help them focus.



#### **Does the student easily lose focus?**

Choose an object near the student to focus on and ask them if they can hold their eyes on the object for 3 seconds without looking away. Have the student prove that they can. Ask the student if they can hold their eyes on the same object for 5 seconds. If they can, have them focus for 7 seconds. Affirm the student's ability to concentrate for that amount of time. Then explain that one answer in SonoLab rarely takes more than 7 seconds of concentration. Finally, ask the student to turn off Autoplay so they determine when their 7 seconds of concentration begins. When the student has the discipline to resume with Autoplay, allow them to do so.

# Facilitate and Encourage

## Adjust Instruction/Intervene

### Student Resources

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



Three-in-a-Row Worksheet in [Student & Teacher Resources](#)

Explain to students that accuracy is the key to moving through the content in this exercise. Students make progress based on the *3-Forward/1-Back Rule*: they move forward when they get 3 answers in a row correct, but they move backward when they get 1 answer incorrect. Because streaks record the number of correct answers in a row, this sheet can help students self-monitor for correct answers by providing the visual feedback that some students need to register their number of correct answers in a row. This sheet is useful for daily monitoring. Students will likely need one copy per day.



Elements I Streaks & Completion Chart in [Student & Teacher Resources](#)

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 [Student & Teacher Resources](#)

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.