



Florida Department of Education Reviewer's Guide

What's included:

Introduction and reviewer instructions

A quick overview of the Science Bits curriculum and platform

How to navigate and use the Science Bits curriculum.

How to leverage the Science Bits platform for each student and teacher needs

Introduction and reviewer instructions

Science Bits was started by the International Science Teaching Foundation (ISTF), a non-profit organization with a mission to improve science education. As part of the extensive research undertaken into best practices in science teaching, the ISTF identified the 5E Instructional Model as the most effective method: research proves it works and mimics how we learn.

Many school districts are eager to find high quality classroom materials that integrate the 5E Instructional Model with engaging and authentic science learning experiences. Science Bits was created to respond to that need and offers a full curriculum with all the tools a teacher needs for success in the classroom.

We invite you as a reviewer to discover the multimedia, enriched interactive activities, and lab simulators included in the Science Bits curriculum together with all of the smart teaching tools the platform provides. Science Bits includes everything a teacher needs for all types of students including tools for real-time formative assessment, content curation, and differentiation as well as full pedagogical support and teacher guidance.

As a reviewer, you will learn how to navigate the units, lessons, and the curriculum included in Science Bits and to leverage that content through more than 30 smart teaching tools.

A digital platform should offer you as a teacher more than a curriculum, Science Bits includes tools that save you time and allow you to shine as a teacher.

Sounds good? Let's begin!



Science Bits, a quick overview of the curriculum and platform

The Science Bits platform was built by teachers for teachers. It includes your core curriculum as well as a series of tools to help you get the most from time with students.

These tools include:

- **Differentiation tools**
You can manage included content. If you need to segment by content by class or student according to student abilities, Science Bits lets you manage content for different students.
- **Real-time formative assessment tools**
Science Bits LIVE makes it easy to gauge student understanding as you teach. Teachers can use it for exit tickets, cold calling etc.
- **Create your own Evaluative Lessons**
Use all the materials included in Science Bits to create your own auto-grading tests and exams.
- **Communication tools**
Teachers can generate competitions or projects with the included Forum, keep absent students updated via Messenger and schedule work with student notifications.

Getting started with Science Bits

The Science Bits Florida Edition is fully aligned to the Florida Department of Education standards for Grades 6 through 8.

Make sure you check out the introduction to Science Bits video which includes a full overview of the 5E Instructional Model implementation included.

We'd also like to draw your attention to some videos that a teacher can use to help students understand the shift in expectations in Middle School Science:

[Everybody Can Learn!](#)

[Let's Learn Science](#)

[Why Do We Learn Science in School?](#)

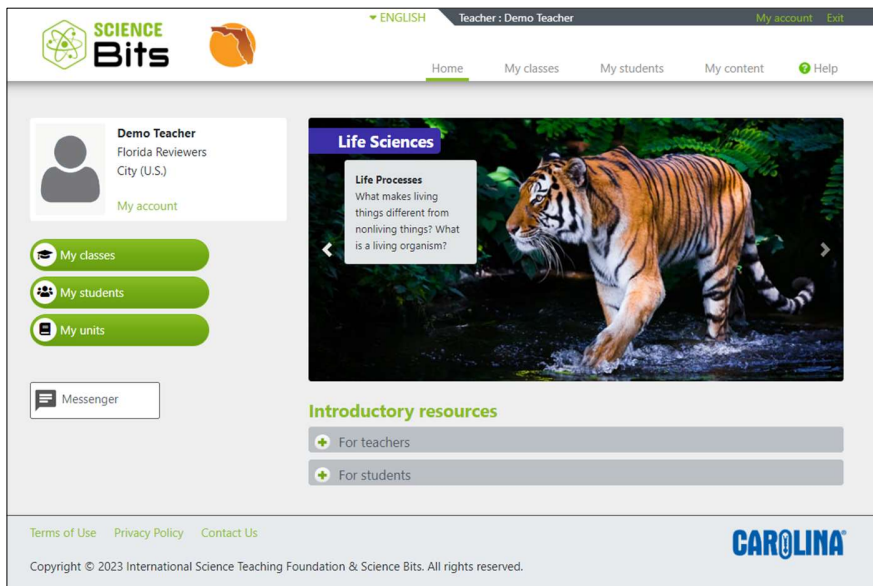
[This is How You Will Learn Science With Science Bits](#)

Navigation and using Science Bits

In this section, we'll explain how to find everything in Science Bits, from the videos and simulators right down to discovering the tools you can use to leverage the curriculum.

1. To log-in as a Teacher, navigate to <https://www.science-bits.com>
2. Tap on "Log In" (upper right corner, green button) and use the credentials as provided. Note that credentials are case sensitive. Each reviewer should have their own account: if two people use the same account, the account may be blocked.

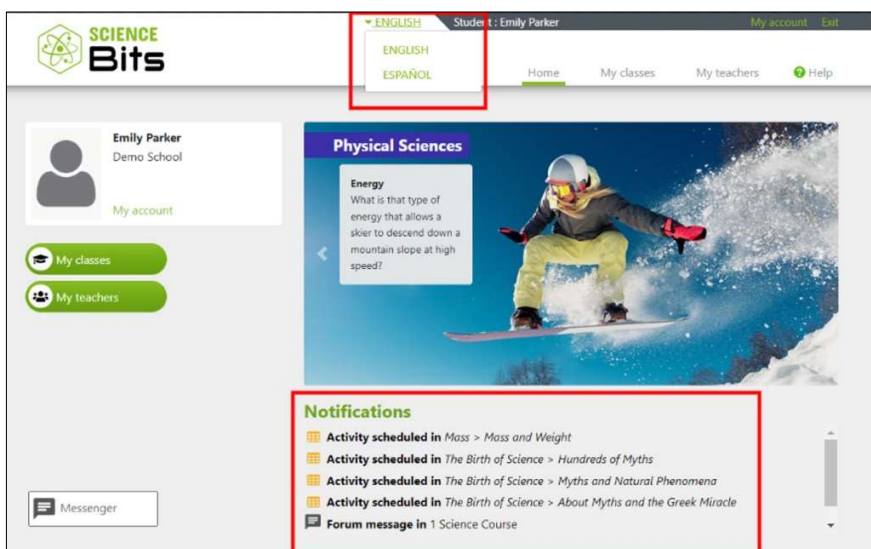
3. Once you have logged in, you will see the following home-screen.



Here, you can

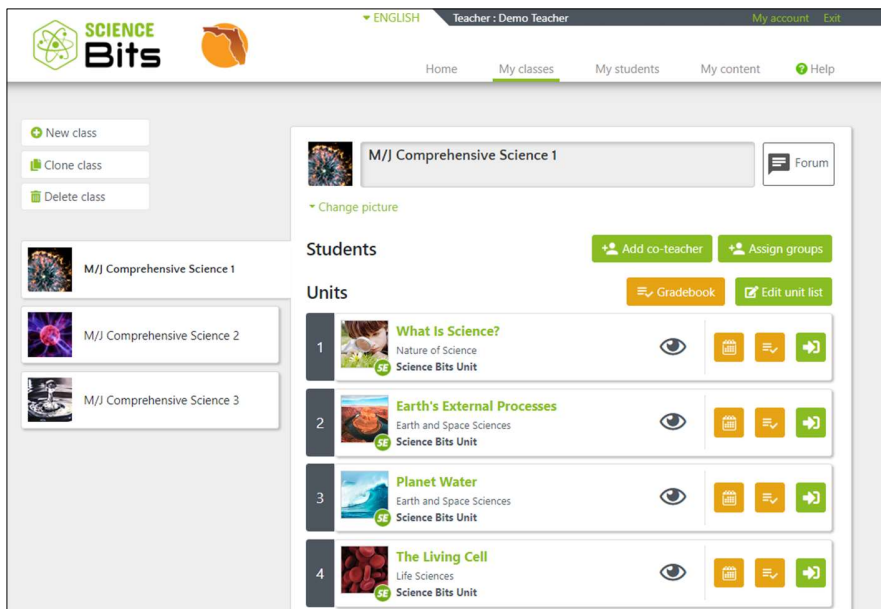
- Customize your profile by tapping on My account.
- Instant message a student or a class via Messenger
- Review Introductory Resources for Teachers (click on “+”)
Note the Best Practices PDF, Introductory Video and Lab Safety Materials
- Review Introductory Resources for Students (click on “+”)
Note the Lab Safety Links, Contracts and videos for students

Additionally, students see notifications for pending work via notifications in the Student home-screen.



Note also you can change the language from English to Spanish: all materials are available in both languages.

4. In My Classes, you will see the following:



You will see TABS that run from the left side that say Science 1, Science 2 and Science 3. Please click on the relevant Grade Level.

Within the same screen, you should note the following buttons:

- New class, Clone class, Delete class
This allows you to copy and differentiate classes for different students' groups.
- Forum
Each lesson has a Forum that a teacher can use (eg. competitions) for each class
- Add co-teacher
Sync content with teacher assistants and work together seamlessly.
- Gradebook
Fully configurable by lesson, unit, term with advanced features like weights
- Edit unit list
Make immediate changes to the units as you need, including order and content.

Below, see the list of units. Each unit is a 5E unit composed of several lessons and teacher guides. Click on a unit, for example, the Grade 8 Unit Mass, Volume and Density. You'll see each line includes controls for that unit: an EYE that allows you to switch off and on content for students, a Calendar button to schedule activities, a Gradebook button with access to the gradebook of that unit as well as a green door on the far right. To enter the unit, tap the green door.

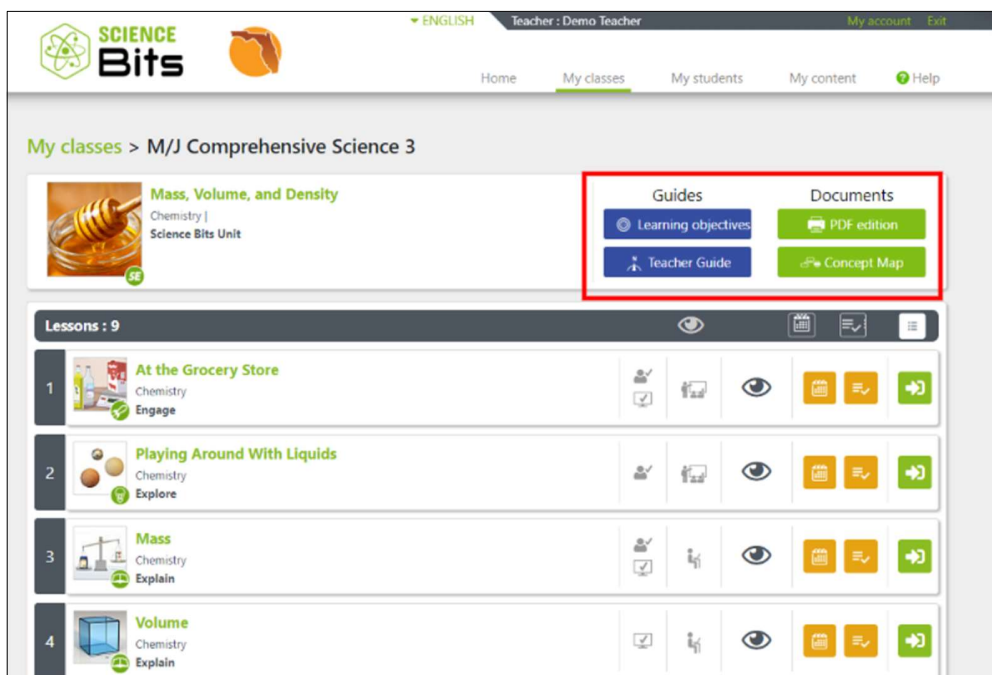


5. Mass, Volume and Density

The structure of each unit is similar for simple navigation.
Each unit includes:

Guides:

- **Learning Objectives**
A simple overview of expected outcomes for students
- **Teacher Guide**
Extensive documentation which includes:
 - **Before we begin**
An overview of prior knowledge and procedural requirements
 - **Learning objectives**
Detail of the Knowledge, Skills and Attitudes students should learn.
 - **Misconceptions**
Ideas that a student may have that are based on faulty observation.
 - **Learning sequence**
Suggestion of the time to be allocated per unit and lesson (in hours)
 - **Discussing contents**
Students may need prompting to take part. Here we provide teachers with some hints on the best approach.



Note that the Teacher Guide may be printed or downloaded and saved by the Teacher.

“Before We Begin” is selected by default. Navigate to any other section (e.g. Learning Objectives) by clicking on the section to read that content.

TEACHER'S GUIDE: MASS, VOLUME, AND DENSITY

Before We Begin

Prior Knowledge

This unit is aimed at students who...

- know that everything that has mass and occupies a volume is matter;
- have internalized the concept of *material*; and
- do not necessarily differentiate between mass and volume.

Procedural Prerequisites

- SI units of mass and conversions between them
- SI units of volume and conversions between them
- Work with two-dimensional graphs

No knowledge of algebra is necessary for either comprehending the learning content of the unit or for the final evaluation. However, such knowledge is required for certain high-level activities at the end of the section entitled "Explain."

Return

Before We Begin
Learning Objectives
Misconceptions
Learning Sequence
Discussing Contents


Documents:

- **PDF Edition**
Downloadable version of the unit that a student or teacher may use offline.
- **Concept Map**
Downloadable conceptual overview of the lesson

Below the Guides and Documents, note:

- Number of lessons in the unit with time required for each lesson.
- The type of lesson (Engage, Explore, Explain, Elaborate, Evaluate)
- Whether the lesson is self-correcting or not self-correcting
- Whether the lesson is Teacher Guided, Student independent or Teamwork.
- EYE icon: Hide/ Show lesson to switch content off or on
- Calendar icon: to schedule lessons
- Lesson gradebook
- Green door: to open that lesson.

Lessons : 9

1  **At the Grocery Store**
Chemistry | Level
Engage

Icons: Eye, Calendar, Checkmark, Green Door

First lesson

6. Cover-page Mass, Volume and Density, Engage

On the right-side, note the navigation and function buttons. From top to bottom:

- **Pencil with number**
Warm up exercise(s); the number indicates how many activities are included.
- **Asterisk**
Documents and Tools are included here
 - Key concepts
 - Dictionary (look up and hear any word in any lesson by clicking on it)
 - Synchronize screens (LIVE) see details below.
 - Notes (teachers can publish notes to students, students take private notes)
- **Interactive index**
Click here to see the Unit index and/or jump directly to another section.
- **Navigation arrows**
Enter the lesson using this arrow.



Synchronize screens (LIVE) offers teachers

On a simple level, Synchronize screens let teachers lock students to their screen to ensure that they are all on the same page and following the lesson. Using the LIVE function via a smartphone, the teacher can also see which students are connected, have Science Bits as an active window and individual student answers and overall class grades in real-time.

Click on the arrow and enter the first lesson.

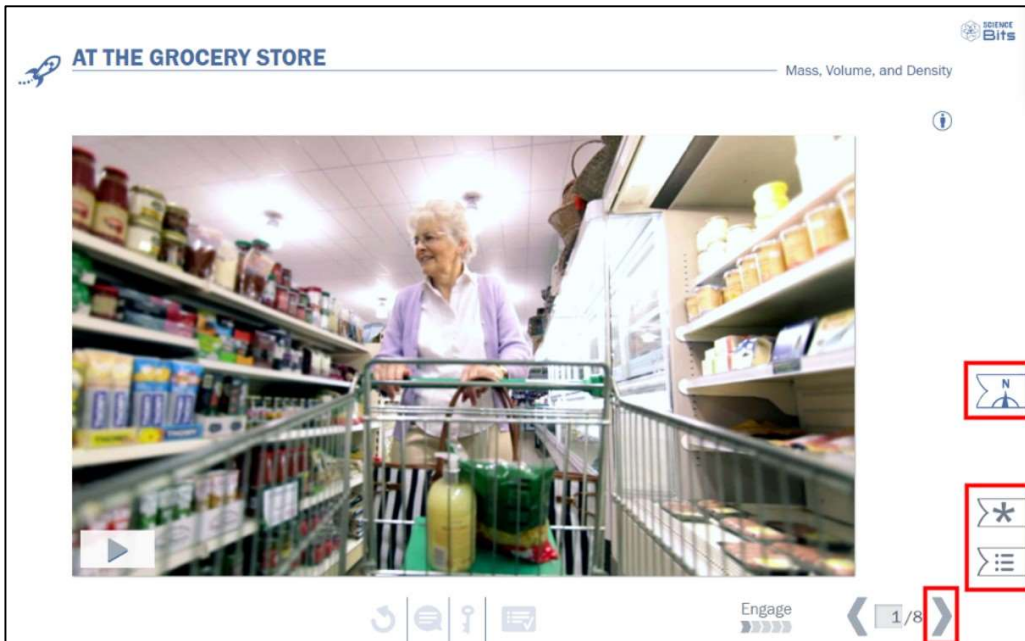
7. Mass, Volume and Density Engage

Engage lessons start with a short video (with subtitles) to contextualize the learning objective. Here, there are no right or wrong answers, the importance of this lesson is to draw our prior knowledge and let the student engage with the material, begin to form ideas, preferably in a respectful but debated classroom discussion. We want students to think, propose ideas and critique their peers' proposals with education and skill, working together to find answers.

According to the Learning Sequence (included in the Unit Teacher Guide) each Engage Lesson will take one class or up to one hour. The importance of the Teacher as facilitator cannot be overstated: they should actively engage with students and prompt discussion, asking why and encouraging students to justify their ideas. The class atmosphere must be cordial, encouraging, and inclusive.

Note to the right, there are navigation and function buttons:

- (N) Teacher's Guide for the Lesson
Where you see (N) there is a Teacher Guide. You will find these throughout lessons and even activities. Teacher's Guides are included throughout so that teachers get full guidance where needed, when needed.
- Asterisk: to access Documents and Tools
- Interactive index
- Navigation arrows (move forward and back, a double arrow moves you to next lesson)



To watch the video, press the play button and interact with the content. All lessons use a similar structure, where you see play buttons or Enter buttons.

Once you have watched the video, click on the right arrow, and move to the next slide. Students enter information in the question boxes and Submit the answers for correction with the submit button or can Restart the activity. In the case of open-ended questions, the teacher must grade manually; self-correcting activities (more than 80% of the questions in Science Bits) grade automatically.

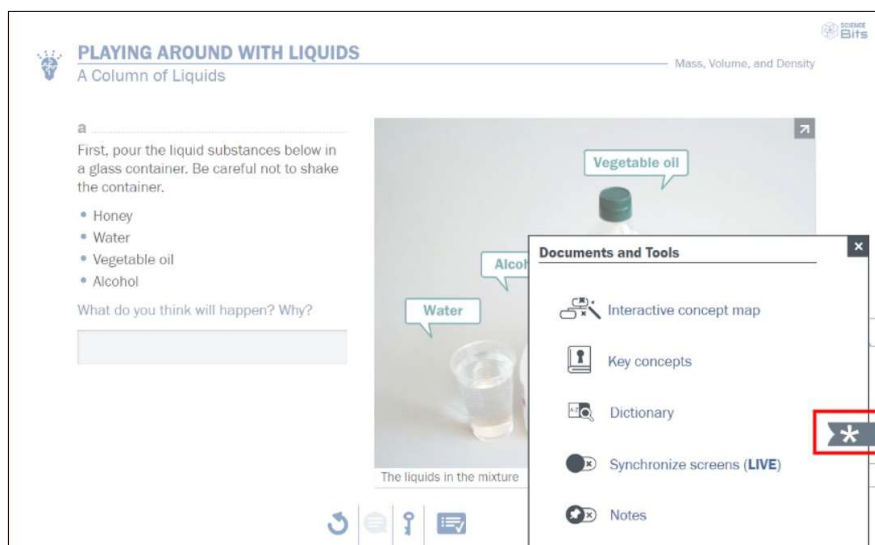
Additionally, number values are randomized for students so they cannot copy. The teacher has access to the Answer Key.

Click on the Interactive Menu and go to the first Explore, Playing Around with Liquids. If you prefer, you can also just click through the slides 3 through 8 and go to the next lesson.

8. Mass, Volume and Density Explore 1 Playing Around with Liquids

The Explore lesson takes the subject matter a step further and builds on the prior knowledge that students have previously uncovered and discovered in group discussion. The Teacher will again facilitate the discussion using the Teacher's Guide for pedagogical support. Note there is a new Teacher's Guide at the right. Please read it and navigate through the slides to see how best to approach the topic with students.

Note you again have access to Asterisk (Documents and Tools), Interactive Menu etc. There's a new item in Documents and Tools: the Interactive Concept Map. This appears in all Explore, Explain, Elaborate and Evaluate lessons and lets students create their own concept maps. A great best practice is to get students to create their concept map at the beginning and end of the unit and then discuss how much they have learned. This is great retrieval practice, and you can couple the activity with the Forum as a competition or even encourage students to show their parents what they're learning to socialize learning.

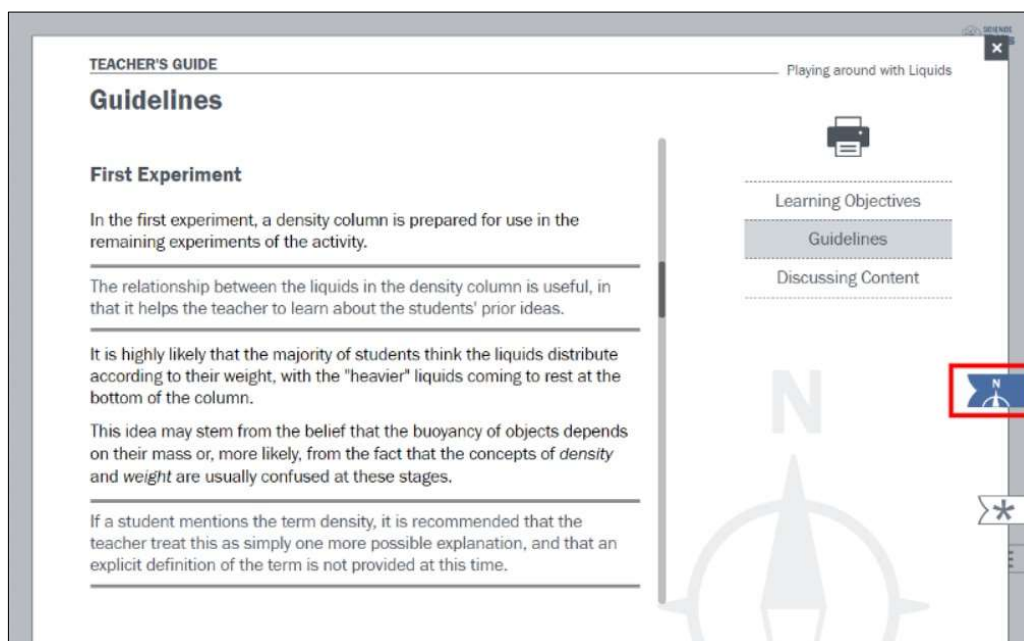


Within the lesson, you will find several experiments with videos on Slides 2, 4, 6 and 8. These are covered in [Teacher's Notes Guidelines](#). Note that the image on Slide 9 nests several images. Note the arrow to the right of the image and the index boxes at the top left of the image to guide your navigation.

The object of the experiments and the lab videos is to bring your students to an “aha” moment. Note that all the experiments in the lab videos and lab simulators can be reproduced easily in your classroom with Carolina Lab-kits.

As a best practice, schools generally teach the objective using the simulators and then – once students grasp the content and concept – dedicate lab time to running the experiments so that students get the best value from physical lab work.

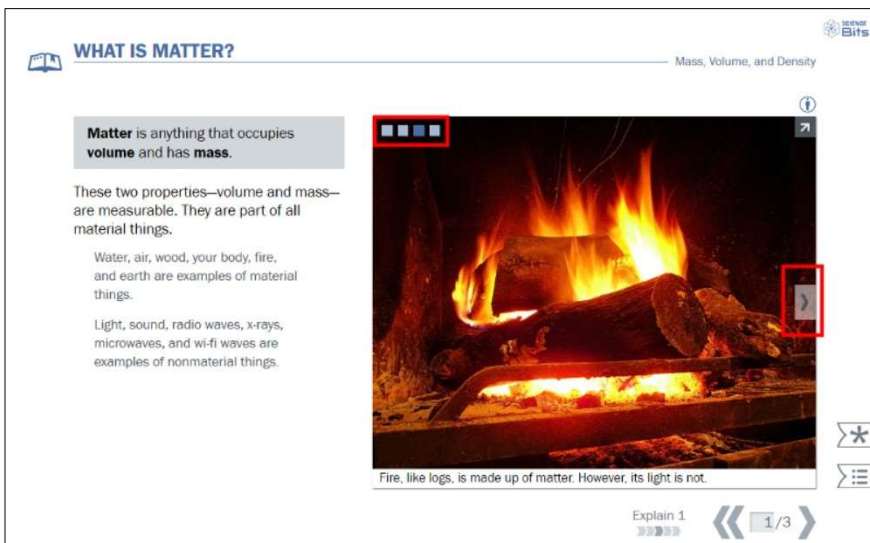
The Teacher's Guide is always available on the right side of the screen under the “N” icon and includes Learning Objectives, Guidelines on the current activity and Discussing Content.



Navigate to the first [Explain](#) lesson using the [interactive menu](#).

9. Mass, Volume and Density [Explain 1 Mass](#)

This lesson starts off in Slide 1 with a statement but note the nested images and illustrations of the concepts and supporting statements embedded in the slide.



On Slide 2, note the new Teacher Guide, Discussing Contents to help you use the simple simulator and guide students towards understanding Mass.

Follow the Teacher Guide and click on the buttons to see a simple simulation and explanation. Note that the Pencil and Number icon that we saw in the Engage Cover is back. This means that there are related exercises. Click on the icon to see the Activities:



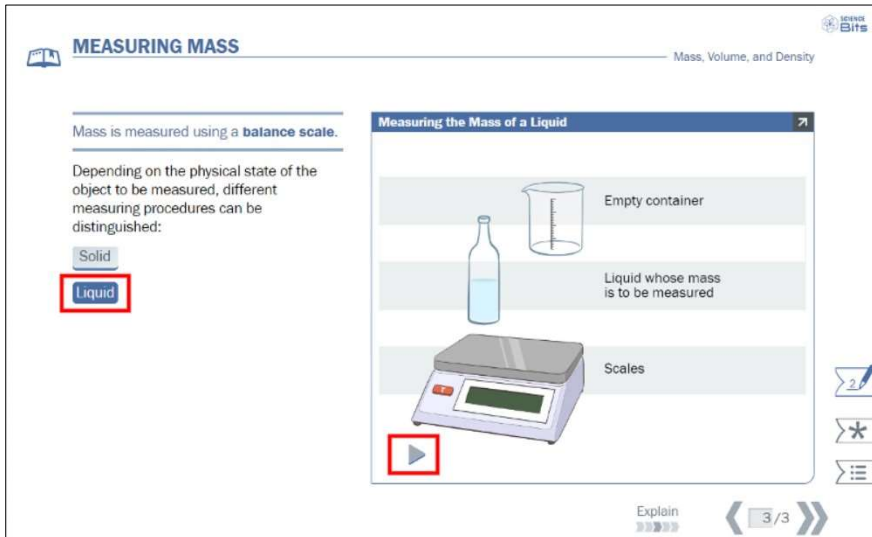
Mass	Difficulty	Type	Type of correction	Result and attempts	Result subtracting attempts
① Units of Measurement of Mass	Reinforcement	Practice		-10	-
② Mass and Weight	Enrichment	Practice		-10	-

10. Units of Measurement and Mass

Although the activity is self-explanatory and includes an Answer Key, you also have a Teacher Guide that makes the learning objective clear.

Close the activity (with the X) and go to Slide 3 for another simulator.

The simulator shows how to measure solids and liquids using lab equipment. Click on the relevant button and press the play icon. Note that you have more exercises here to share with students.

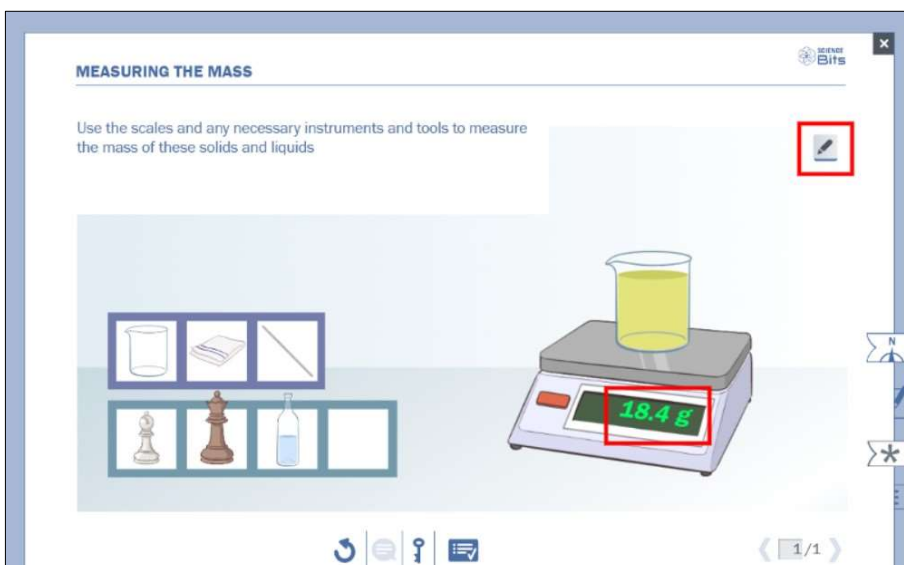


Now, let's see the NEW exercises on this slide. Click on the Related Activities icon which is a pencil on the far right with the number of available exercises. There are two, let's use the first one.

11. Measuring the Mass

Note the Teacher Guide with the Learning Objectives.

This is a simple drag and drop exercise and, like all Science Bits activities, it is similar to the digital exams now used in many states. Note that the student must figure out what they must use and how to use it. They have to measure liquids and solids and learn to use the TARE button and correct SEPs to get the right result. Again, note that each student gets randomized values: they can't copy but they can explain and teach another student how to get the answer and we encourage this.



With the pencil, students can fill in the values and submit their answers. Note that each unit may have multiple Explain lessons. We do this so that the content is chunked and spiraled to aid the student learning process.

Summary

- Science Bits Units and Lessons all have a similar structure.
- As a teacher you can edit and differentiate your content
- Each unit has a Unit Teacher Guide, eBook PDF and Concept Map
- Each lesson contains multimedia (videos, images, lab simulators) and can have multiple images and activities nested on the same slide
- Text is reduced to the minimum and most essential.
- Specific Teacher Guides appear in the Unit, Lessons and even Activities.
- Documents and Tools have Interactive Concept Maps. Dictionary, Science Bits LIVE etc.
- Activities are identified by the Pencil with Number (Explain, Cover of Engage etc.)
- You can navigate using the Interactive Menu or Arrow Keys
- Teachers get an Answer Key and students get randomized values to avoid copying.

Many materials can be nested on the same slide. You can find multiple images, multiple simulators, multiple definitions, multiple labels etc. This is important so that students can identify, compare, contrast, and describe what they see in a way that allows them to contextualize. We naturally scaffold learning through contextualization and encourage students to connect the dots. The Teacher Guide will always suggest best practices to do this most effectively.

This is how Elaborate works. Please use the Interactive Menu to jump to the Elaborate lesson.

12. Mass, Volume and Density Elaborate

We'll take students further on their learning now and encourage them to put into practice the knowledge, skills and attitude learned with a real-life challenge. Each Elaborate is different and can include research, writing an article, creating an informative webpage, poster etc., as well as interacting with data to actively propose engineering solutions. The idea is to show students that what they've learned is not only relevant but of use today, tomorrow and in the future. In this Elaborate, we'll teach the students about the King of Syracuse and ask them to put their learnings into action and prove if something is gold or not.

Firstly, note the new Teacher Guide. Here you have Learning objectives, Guidelines and Solving Process (in case the teacher needs guidance how the solution should be arrived at). Again, the Asterisk gives you access to Documents and Tools.

Elaborates can be individual or group work. This is indicated in the Unit Overview, in the Unit Learning Sequence (it also includes a recommendation of time to allocate to each lesson) as well as the Lesson Teacher Guide.

In this case the work is done in groups and the students work in teams to find the answers and solve the problem: was the Goldsmith telling the truth? Why? Prove it and justify your answer.

THE KING'S CROWN
Starting the Investigation

Mass, Volume, and Density

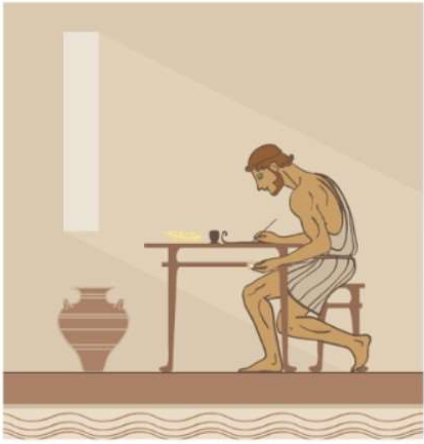
To please the king, Archimedes has to carry out the investigation and write a full report of what he has done, and how he has done it.


The king is a curious man. He is not skilled in science, so he always expects people to explain everything to him in detail. Archimedes has to bear this in mind, too.


Put yourself in Archimedes's shoes. Plan the experiments, carry them out using the simulator, and write the report that the king wants to read.


The report must include:

1. Objectives.
2. Theoretical basis.
3. Material needed.
4. Procedures and justification of each step taken.
5. Final conclusions.









Elaborate

< 2/8 >

Students watch the video and must work in teams and like many projects in Science Bits, the students have to research and advance in their learning themselves, with time, prompts and encouragement from the Teacher when and if they get stuck. Students learn from the activity that by applying the principles of science they can solve real-world problems.

THE KING'S CROWN
Starting the Investigation

Mass, Volume, and Density

Use these tools to make the necessary measurements.

Type in the results by pressing on the pencil icon.









Elaborate

< 3/8 >

Students have taken their knowledge and applied it meaningfully. In the final lesson, we'll challenge them to take another step and consolidate, reinforce, and advance their learning organically in Evaluate. Please use the Interactive menu to go to Evaluate.

13. Mass, Volume and Density Evaluate

Evaluate is an exercise that incorporates retrieval practice, consolidation of understanding and leverage of knowledge, skills, and attitudes. The lesson can be scheduled by the teacher and time given (as decided by the teacher with the “Calendar” icon) so this can be carried out at home, in class or – as values are randomized – it can be completed in class in groups and then set as homework.




The first slide gives a great overview of the learnings of the Unit, a short video that gives students a concise bird's eye view of the phenomena.


Note the extensive Teacher Guide for the lesson which includes Learning Objectives, Guidelines, Solving Process, Discussing Contents. This is an open book test and can require research and students don't answer based on what they have learned but now take their knowledge and prove their understanding by independently solving challenges.

Again, note that each slide has a separate Teacher Guide that helps you through the lesson. There are a variety of formats, activities and exercises that can include reading texts, graphs, charts, interpreting data, proposing solutions, reaching conclusions.

- Slide 2: Reading, interpretation, and multiple choice
- Slide 3: Run simulator, complete data
- Slide 4, 5: Reading text, calculation
- Slide 6, 7: Reading text, interpret graph, calculation
- Slide 8: Calculation, CER
- Slide 9: Infer value based on data
- Slide 10, 11: Research and use SEPs to prove value of jewelry



1. PREPARING A DENSITY COLUMN





Evaluation: Mass, Volume, and Density


Successful actions require preparation. Improvising can be difficult and often leads to failure.

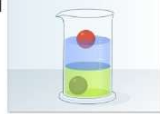
This is why it is worth making some measurements and calculations before using an experiment to show what a density column is and at what height different materials will float.


Use the simulator on the next page, make any necessary calculations, and select the image displaying the correct distribution of both objects and substances.



















Evaluate


2/12

At the end of the test, students only need to click on the “Correct and send” button to submit the test and receive their grade automatically.

Leveraging the platform to adapt for student and teacher needs.

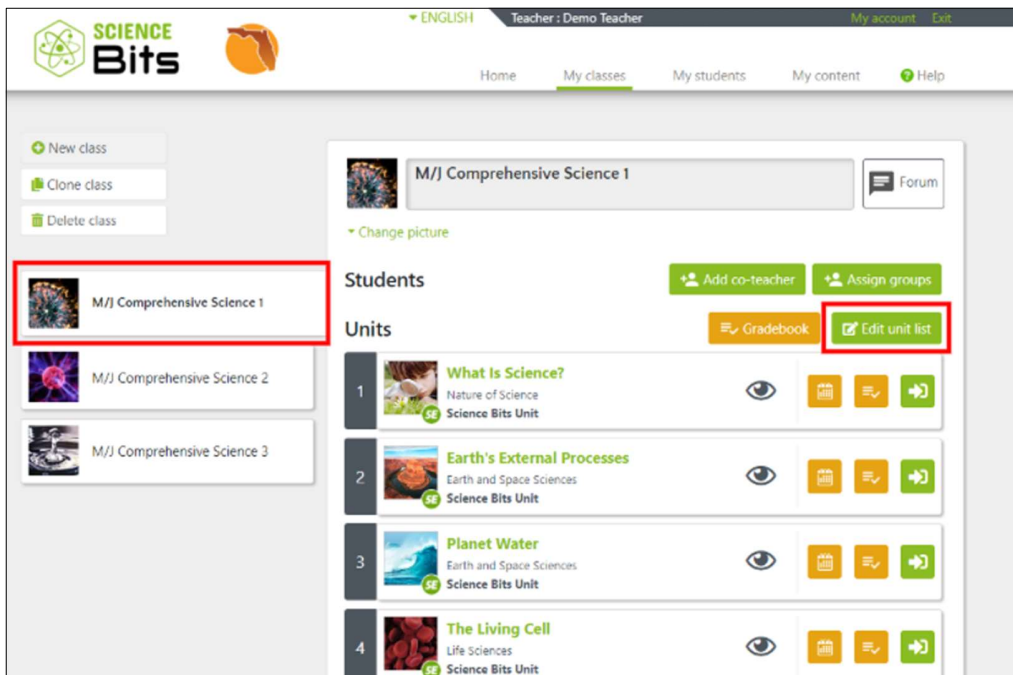
1. How to differentiate content for different students

Now we know how to adapt the content of a unit, let's give some students more advanced work (or easier work, as the case may be).

To do this, you'll need to go back to My Classes. In this case we'll differentiate content and create Grade 6A and Grade 6B.

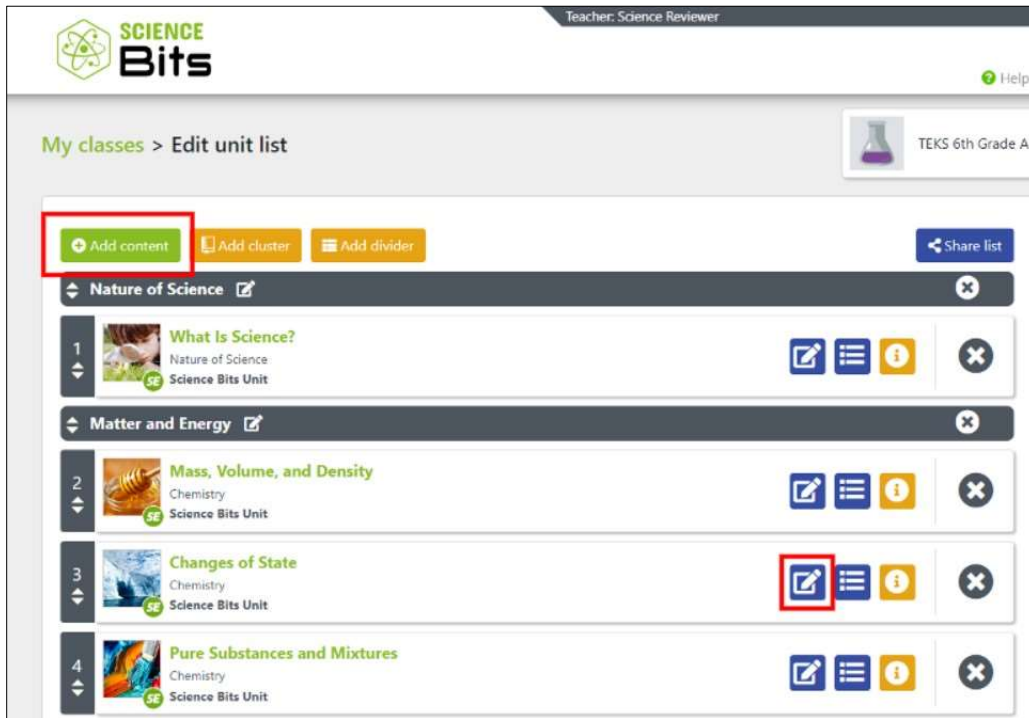
Make sure you're on the Grade 6 tab and click on "Clone class" to obtain an exact copy of the unit sequence, which we will proceed to edit and adapt to our students' needs.

Once you have two instances of your class with the predefined unit sequence, you can proceed to edit them separately. You can start by editing the name of the classes and renaming them as *6th Grade A* and *6th Grade B*. Once this is done, select "Edit unit list" in one of your classes to start editing it.



Students who struggle can be given help with easier activities and assistance while you keep students on task with engaging work. It's easy:

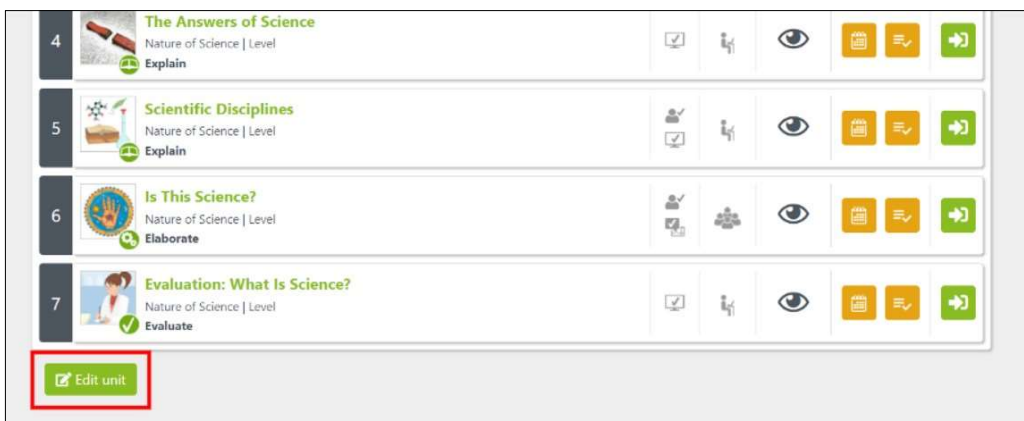
- You can edit the order of the units, delete units or add additional content from the Science Bits library with the "Add content" button.
- By clicking on the button with the pencil "Edit unit", you can also adapt each learning unit individually. Add, delete, or rearrange lessons in the unit, or choose from the available activities in the Explain lessons according to your students' needs as seen in the next section.



2. How to ensure the right fit for your students

Different students have different needs and Science Bits helps teachers ensure that the student has the best possible experience. As an example, some special needs schools reorder the 5E to allow students with communicative difficulties to start with Explore and then use Engage. You can do this and much more with Science Bits.

Select the Unit you wish to change from My Classes. In this example, we'll use What is Science? Tap on the Green door and scroll down to the bottom of the page. Tap on Edit Unit.



Now, you can reorder the lessons using the arrows in the grey bands to drag and drop the content as you wish.

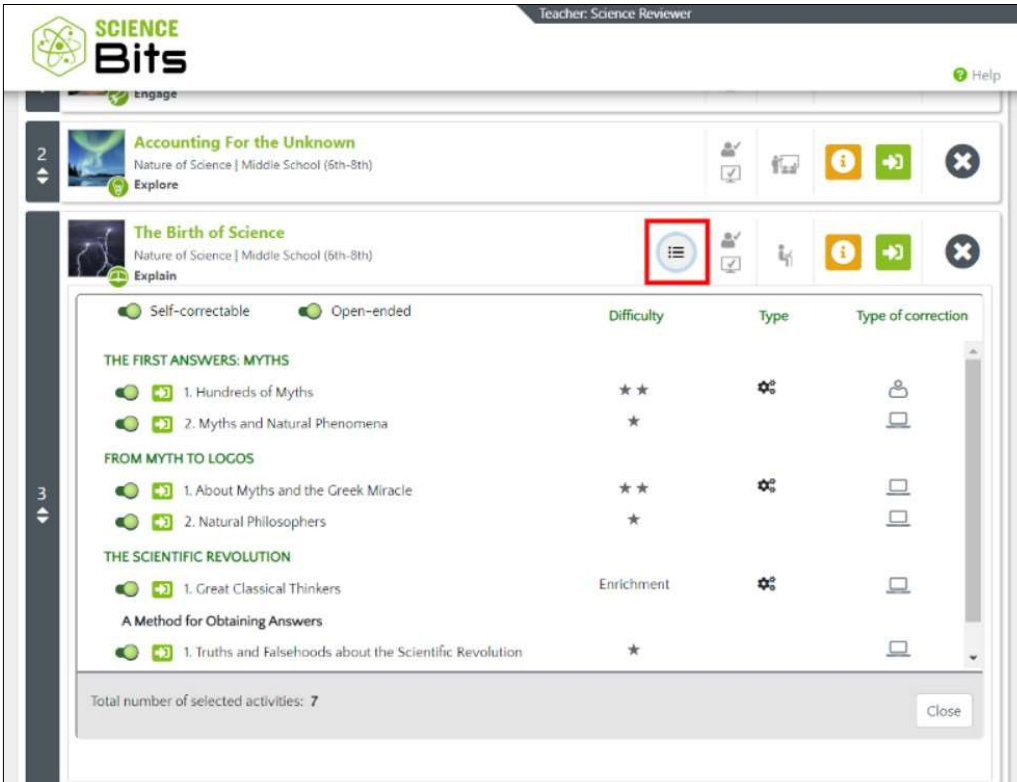
Additionally, you can Remove content using the large “X” button. Don’t worry, you’ll be asked to confirm your choice. Even if you delete a lesson, you can add it later.

You will note in the Explain and Evaluate that you can see a button with THREE LINES. This allows you to modify the questions for different students.

Click on this control on The Birth of Science lesson

There are different kinds of activities:

- Difficulty: One star, two stars, three stars, enrichment
- Type: Competency, Reading, Math, etc.
- Open ended: text answers you need to grade manually.
- Self-correctable: no grading is required.

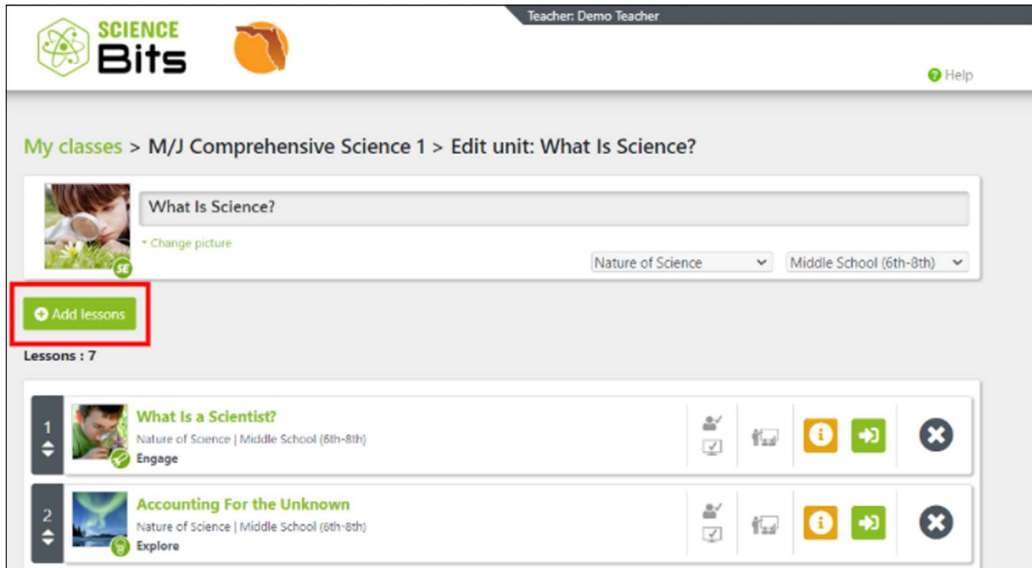


The screenshot shows the Science Bits interface with the 'The Birth of Science' lesson selected. A red box highlights a button with three horizontal lines, which is used to modify questions for different students. Below this, a table lists activities with their difficulty, type, and correction options.

Activity	Difficulty	Type	Type of correction
THE FIRST ANSWERS: MYTHS			
1. Hundreds of Myths	★★	⚙️	👤
2. Myths and Natural Phenomena	★		📄
FROM MYTH TO LOGOS			
1. About Myths and the Greek Miracle	★★	⚙️	📄
2. Natural Philosophers	★		📄
THE SCIENTIFIC REVOLUTION			
1. Great Classical Thinkers	Enrichment	⚙️	📄
A Method for Obtaining Answers			
1. Truths and Falsehoods about the Scientific Revolution	★		📄

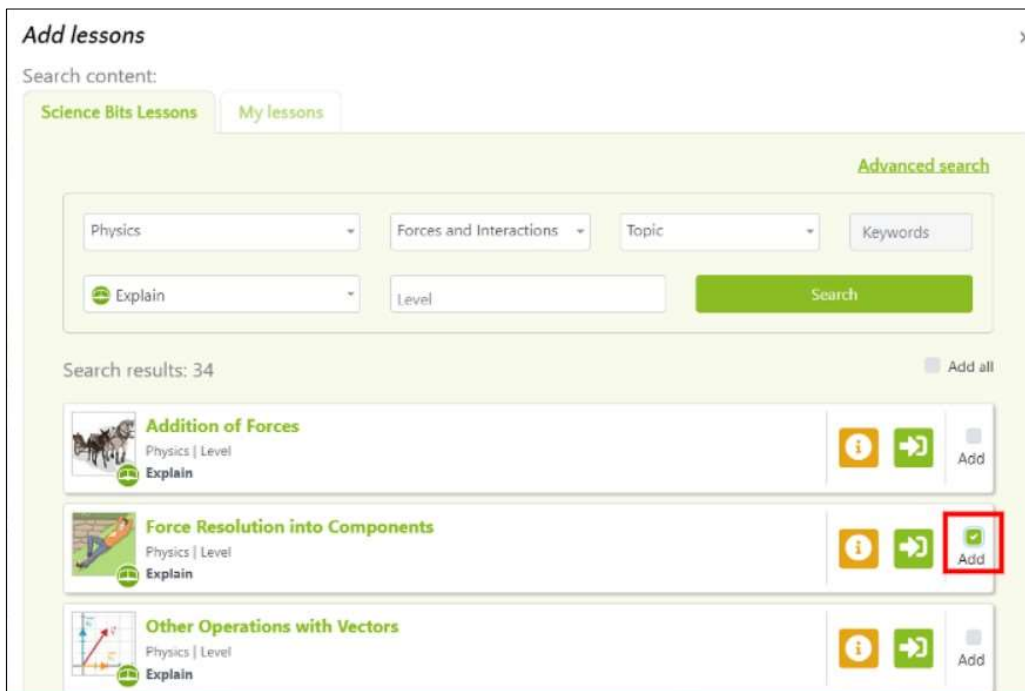
Total number of selected activities: 7

You can also add lessons from other units in Science Bits, by clicking on the “Add lessons” button on the top left corner.



A search window will appear, letting you choose from different filters to find exactly the type of lesson and content needed for your students.

Select "Add" next to the lessons you want to add and scroll down to click on "Add lessons" to confirm your selection.

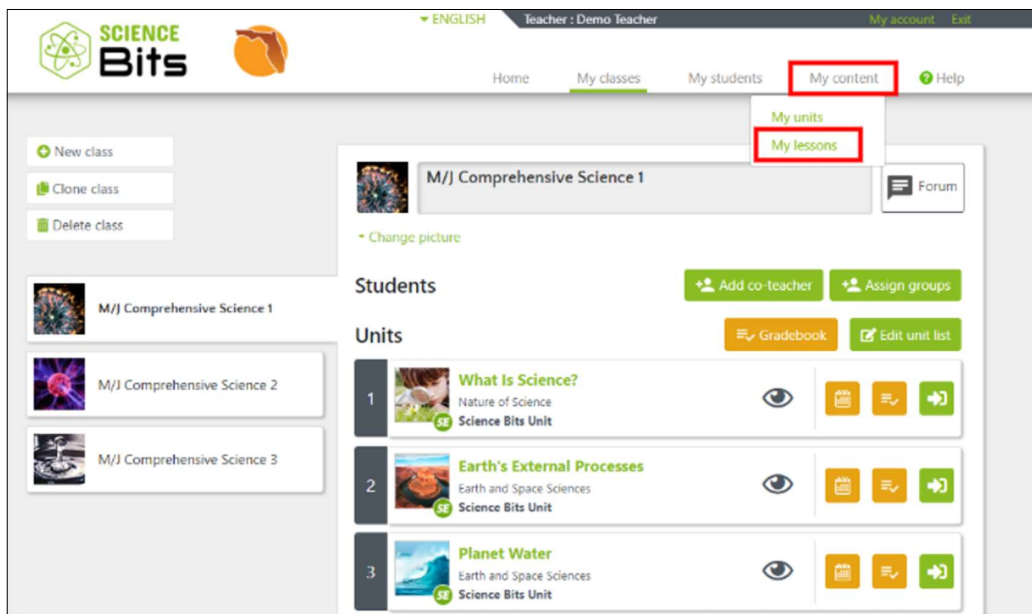


Once you are happy with the edits to your unit, tap on Save Unit to save your changes.

3. How to add your favorite materials into any unit

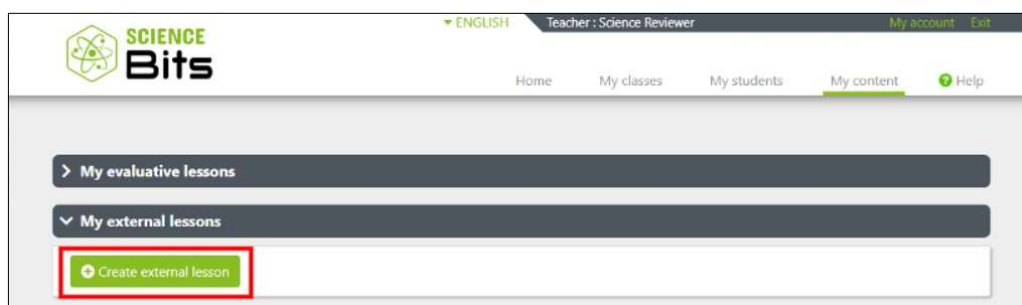
Teachers always have something they love to use for a specific class. Maybe it's a YouTube video? PDF? Google Slides? Anything that is hosted online can be included in Science Bits.

Go to My content > My Lessons > My external lessons



In this case, we want to add a YouTube video. We're going to add a video called "Geologic History of Florida" which is available at this URL:
<https://www.youtube.com/watch?v=BaY3BUEf1x8>

Remember that anything with a URL can be added to Science Bits. Tap on Create external lesson



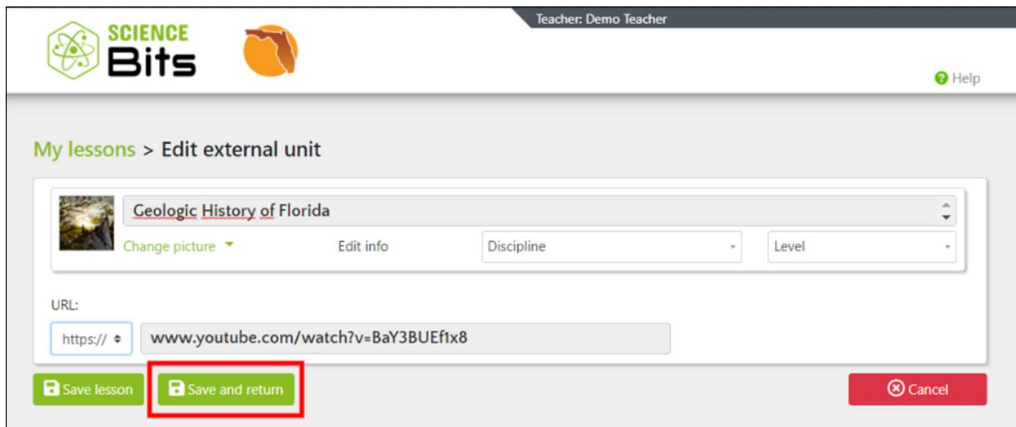
Title the Lesson *Geologic History of Florida*

Change the picture and select the Discipline and Level.

Select https:// below the URL as the URL is https:// rather than http://

Copy and paste www.youtube.com/watch?v=BaY3BUEf1x8

Tap Save and return and you can see that the video now exists.



Let's now add it to a unit. Let's add this video to Minerals and Rocks in Comprehensive Science 2.

Go to My Classes > Comprehensive Science 2 > Minerals and Rocks

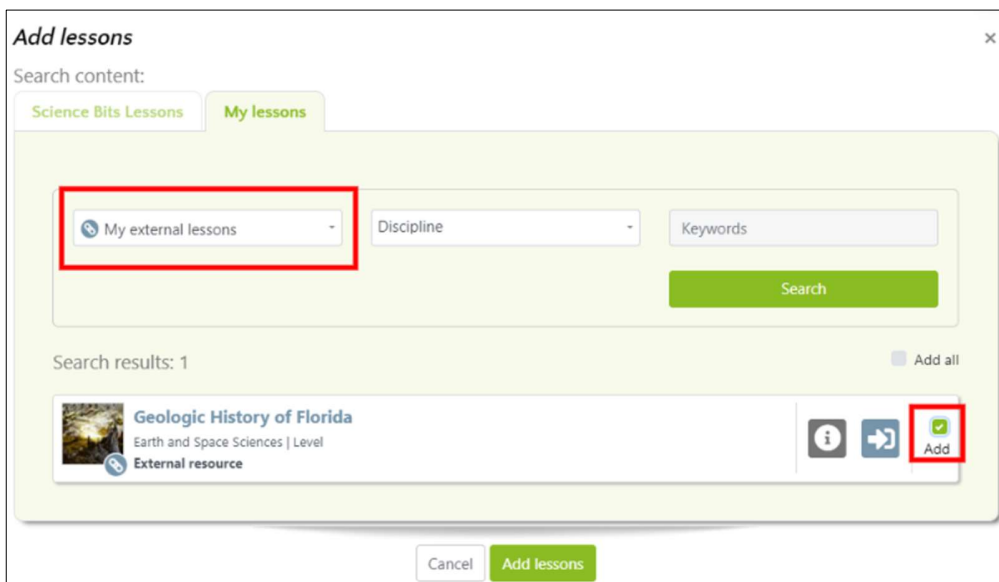
Scroll to end, and tap Edit unit

Tap + Add lesson

Then choose the My lessons tab and mark My external lessons

Tap Search and any lessons you have created appear here.

Let's select Geologic History of Florida and tap Add Lesson.

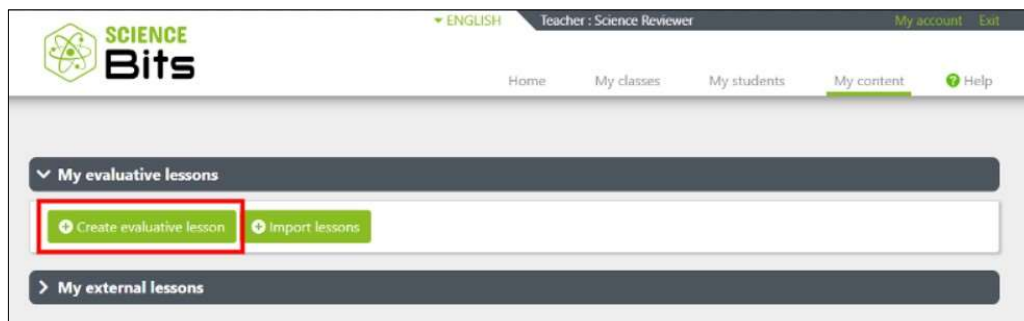


You will see that the new lesson appears at the very end. Using the arrows, just drop it in the right place in the sequence. In this example, we add it after the Engage lesson.

Remember to Save to keep any changes you have made!

4. How to create your own self correcting exams for the End of Term 1, 2 etc.

Go to My Content > My lessons and tap on + Create Evaluative Lesson



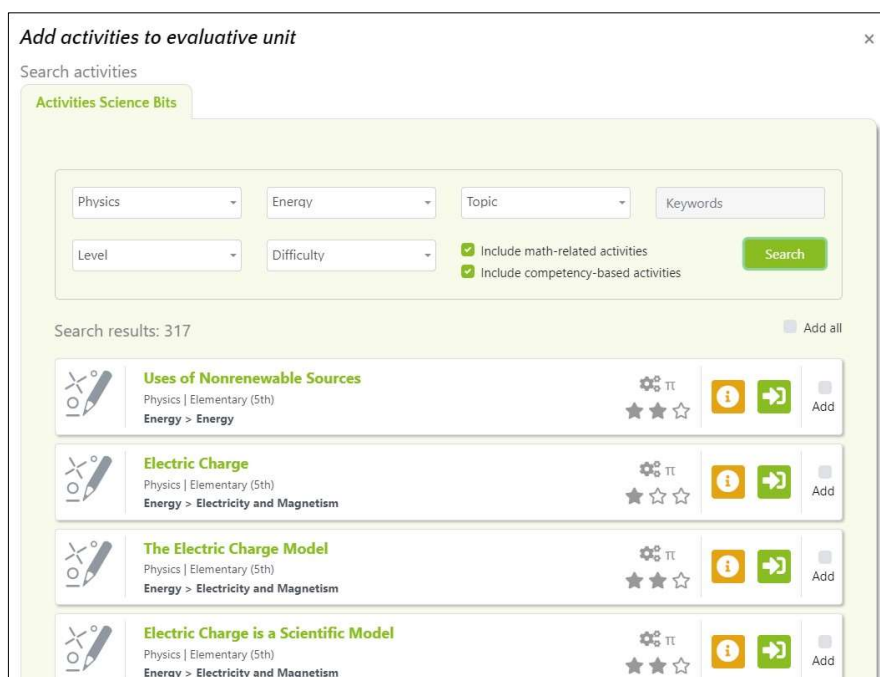
For this example, let's title it Grade 6 Term 1 Assessment and select a picture

Select the relevant Discipline, Level and tap Add Activities

Choose at least two criteria and tap Search

With a search you can get over 1000 matches, so we recommend that you search always by

- Discipline
- Domain or Key Word



The results show you the available content with Title, Unit and Difficulty Rating.

Click the Information button to review the information on the activity, the Green door to enter the activity and tick to add.

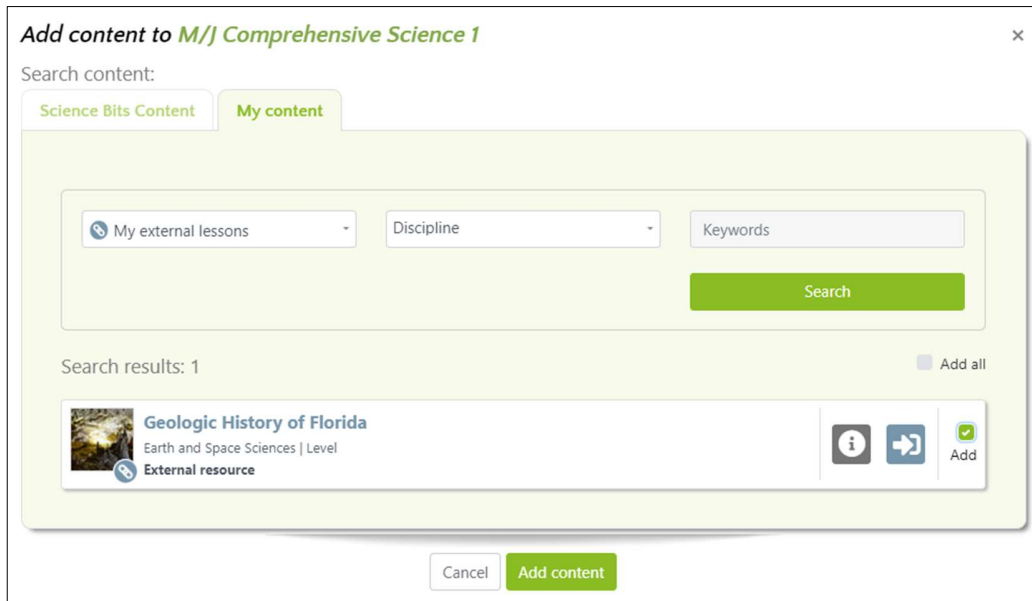
In this case, we'll add 4 Activities and then tap at the end of the results Add Activities

Now Save and return to My Classes Grade 6 Tab.

Tap on Edit Unit List

Tap on the My Content tab and select My evaluative lessons and tap Search

Look for Grade 6 Term 1 Assessment and tick Add then tap Add Content



Scroll down, your Assessment appears at the end and you can place it where you want with the arrows and Save.

Note that you can share this with other Teachers and import other Teachers' exams easily using the Import Lessons button in My Evaluative Lessons and the Share button

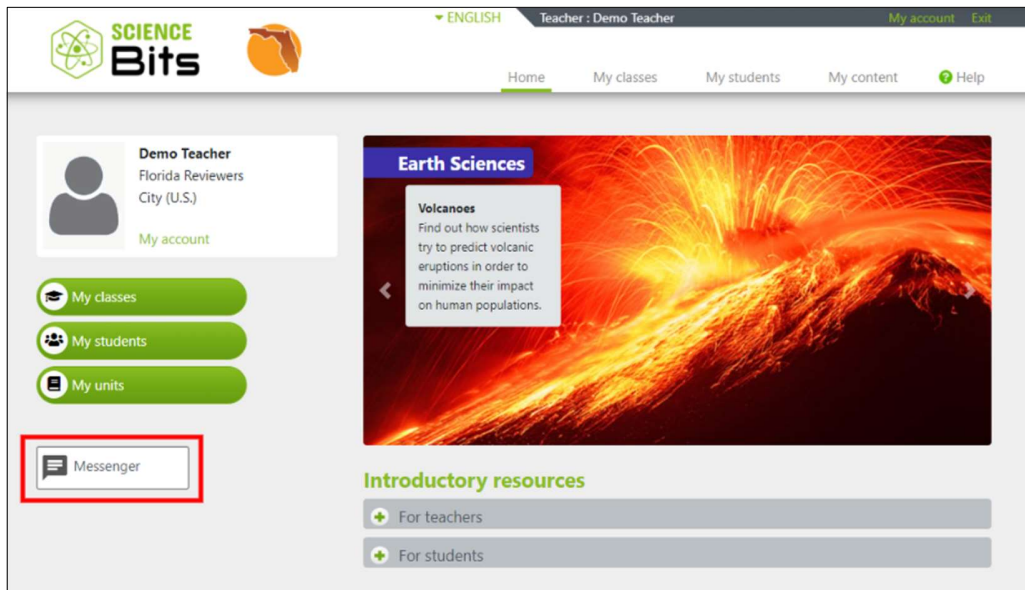
5. How to ensure no student gets left behind

There are many students who need extra support and to know that their Teacher notices when they're not in class. Not all students can go to school all the time so Science Bits includes tools that allow Teachers to keep their students up to date on what's going on in class.

There are multiple communication tools so that Teachers can choose what is most appropriate.

Messenger

Messenger is in the home and can be used to send group messages and individual messages.



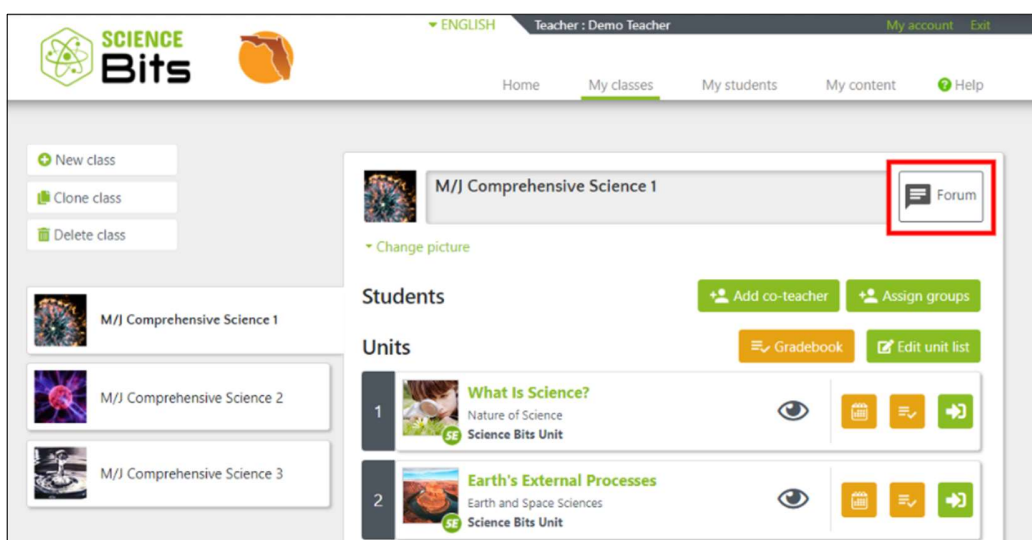
Remind the whole class via Messenger they need to have their slides prepared by Friday for the Science Fair.

Let a student know via a direct personal message that you missed them the previous week in class. The work covered included A, B, C and that they can let you know if they need help.

Forum

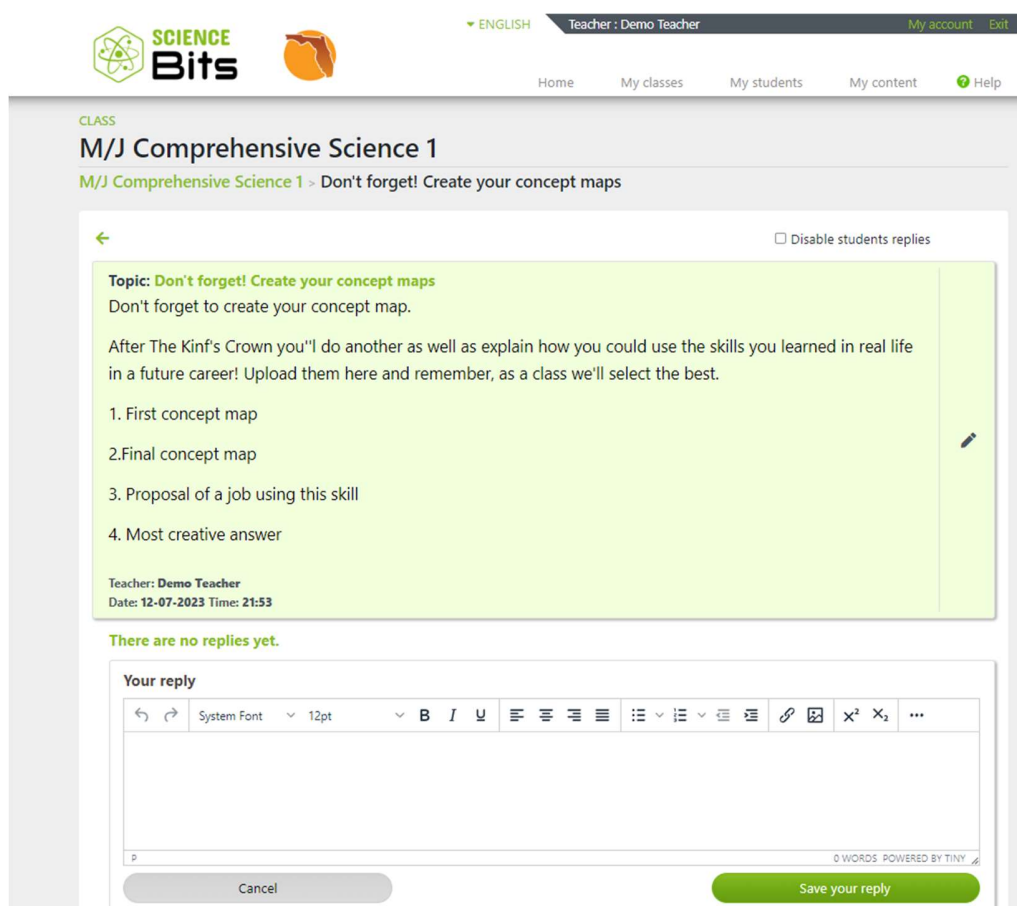
A Forum exists for every class. You can create topics for each unit and add extra content, suggestions for further reading or even run competitions for the best concept map.

With Forum, teachers can use it to give a class overview (and disable replies) or use it for discussions, ideas and sharing research. It's flexible and can be a great communication tool.



6. How to socialize learning, run competitions and help students keep learning

The Forum is a great place for this. One best practice is to challenge students after Mass, Volume and Density Explore Playing Around With Liquids to create a concept map. Once they have done The Kings Crown, ask them to do another concept map and compare the two. Suggest that they explain to parents what they have learned and ask them to suggest ways that they may be able to use these skills in the future or in what kinds of STEM careers could they use these skills? You can apply this idea to just about every unit, you can make retrieval practice interesting and encourage students to map their own progress. With each unit, you could have winners for (i) best initial concept map (ii) best final concept map (iii) best research on STEM careers and (iv) best effort or most creative approach. Get everyone to participate by making this an activity that counts towards their overall grade. Research shows that students who think about what they learn, learn better. This activity encourages that and it can be homework. Why not explain to others what you've learned in school and try to share the knowledge!



The screenshot shows the SCIENCE Bits forum interface. At the top, there is a navigation bar with the SCIENCE Bits logo, a language dropdown set to 'ENGLISH', and user information for 'Teacher - Demo Teacher' with links for 'My account' and 'Exit'. Below this is a main navigation bar with links for 'Home', 'My classes', 'My students', 'My content', and 'Help'. The main content area is titled 'CLASS M/J Comprehensive Science 1' and shows a post titled 'Don't forget! Create your concept maps'. The post content includes the following text:

Topic: Don't forget! Create your concept maps
 Don't forget to create your concept map.

After The Kinf's Crown you'll do another as well as explain how you could use the skills you learned in real life in a future career! Upload them here and remember, as a class we'll select the best.

1. First concept map
2. Final concept map
3. Proposal of a job using this skill
4. Most creative answer

Teacher: Demo Teacher
 Date: 12-07-2023 Time: 21:53

Below the post, it says 'There are no replies yet.' and there is a 'Your reply' section with a rich text editor toolbar and a 'Save your reply' button.

Additionally, encourage students to share ideas, resources, and opinions. Set ground rules about respect, correct use of time and don't be afraid to call out great behavior. Reinforce good behavior and students will generally respond well.

7. How to customize your Grade Books to encourage student participation

Everyone cares about their grade. Students who struggle need encouragement and to know that if they participate and try they're on their way to improving their grades.

You can configure the Grade Book in many ways. The possibilities are literally endless, it's fully configurable. A best practice is to encourage participation in Grades 6 – 8.

Click on the Gradebook icon on any of your units to access results, edit the way your students are assessed and check the overall progress.



You can set up the Grade Book to give students points for participation, asking questions, following instructions, and trying. One easy configuration is to set the weights for each of the 5Es as follows:

- Engage: 10%
- Explore: 10%
- Explain: 20%
- Elaborate: 20%
- Evaluate: 40%

Unit gradebook
Formed by Cells

[In competencies](#) [Explain Gradebook](#) [Schedule activities](#)

	Engage_1	Explore_1	Explain_1	Explain_2	Elaborate_1	Evaluate_1	Average	Weighted Average*
Group 1								
Chase, Nick	96%	95%	80%	80%	100%	93%	91%	93%
Green, Paul	?	96%	66%	?	-	57%	73%	?
Hanson, Sloan	93%	98%	-	88%	80%	30%	68%	80%
O'Conner, Nancy	100%	91%	100%	89%	100%	90%	95%	96%
Parker, Emily	95%	93%	-	52%	100%	0%	60%	58%
Group Results	96%	95%	82%	55%	95%	54%	77%	?

Explain to students that by just taking part in Engage and Explain and working in the Elaborate that they will almost have 40%. Research shows that students who are interested, want to learn and are encouraged to learn will do better. Let's make the bar reachable. We're not going to talk down to students or lower it for them but we will do everything we can to help them reach it if they try. Science Bits can help you encourage students!

8. How to support Spanish speaking students who are ELLs

Science Bits is bilingual, you can use the EYE icon to switch off and on content as you already know. This also applies per language so you can allow students to use in Grade 6 all of Science Bits in English and Spanish. We do recommend however that the

For example:

In Grade 6, Fully bilingual except Evaluate in English only

In Grade 7, Fully bilingual except Evaluate, Explain, Elaborate in English only

In Grade 8, English only

Teachers can choose what is best for each student but the platform includes fully bilingual content.

There is additional support for ELL and SPED Teachers here:

https://drive.google.com/file/d/1Z6krcEFYLFkrcZI_ba-1L19-s0P8omCE/view?usp=sharing

This document is provided to Teachers during Training.



The screenshot shows the Science Bits interface in Spanish. At the top, it says "ESPAÑOL" and "Docente: Science Reviewer". Below the navigation bar, there is a list of units. The unit "Evaluación: Cambios de estado" (Evaluation: Changes of state) is highlighted, and its eye icon is circled in red, indicating that content visibility settings are being adjusted.

Unit Number	Unit Title	Level	Activity Type	Eye Icon	Other Icons
2	Calentando y enfriando sustancias	Química Nivel Exploramos	Exploramos	Visible	Checklist, People, Print, Refresh
3	Cambios de estado y temperatura	Química Nivel Explicamos	Explicamos	Visible	Checklist, People, Print, Refresh
4	Los efectos del calor sobre las sustancias	Química Nivel Explicamos	Explicamos	Visible	Checklist, People, Print, Refresh
5	Inventores de termómetros	Química Nivel Elaboramos	Elaboramos	Visible	Checklist, People, Print, Refresh
6	Evaluación: Cambios de estado	Química Nivel Evaluamos	Evaluamos	Visible (highlighted)	Checklist, People, Print, Refresh

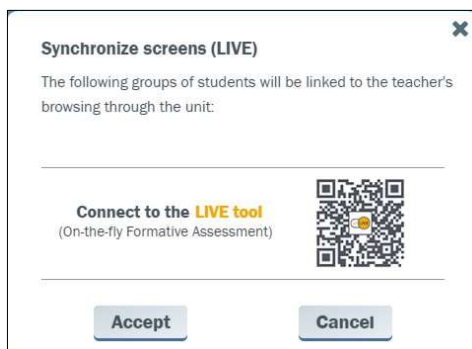
9. How to make retrieval practice, real-time formative assessment, cold calling or exit tickets part of your class routine with Science Bits

Science Bits allows teachers to guide students through a lesson by locking them to the teacher page. In Documents and Tools, just tap on Synchronize Screens (LIVE) and all of your students are now on the same page and they cannot navigate away.



Additionally, you can now use the Science Bits LIVE function to run retrieval practice, real-time formative assessment, cold calling or exit tickets in your classroom.

Scan the QR code with your smartphone and get a list of students who are connected. See if students are connected, are looking at something else (if Science Bits is not the active window, you see a yellow triangle WARNING).



Display the activity you wish to use and you can see student answers in real time, their grade and the grade of the entire class on your screen. Not sure if they really understood the lesson? You're able to see whether students understood and decide how to progress.

10. How do I flip the classroom with Science Bits?

Although fully digital, Science Bits is replete with simulators, videos and activities that help a student see how experiments work. They don't have to wait weeks for results, simulators will show results of plants growing over weeks in a few clicks based on their inputs. It's designed to be fully hands on but virtualized so that when they are in a lab environment, they have already learned lab safety (see Resources for Students), know how to use the equipment (all simulators are realistic and designed to function like real equipment) and have discovered the importance of following science and engineering practices.



As a best practice, we recommend using simulators and digital experience to give students lab access 24/7. They don't need to go to the lab to do their work. At the same time, we recommend once the phenomena have been explored and understood that they should where possible have the opportunity to demonstrate and see laws, theories and hypothesis in action themselves. By flipping the classroom this way, students get 24/7 lab access and more value from their time in lab. They know the procedures, what to look for and this helps consolidate learning. To support Teachers who wish to implement this, lab kits are available from Carolina.