



Welcome to
TINKER
Class

Teacher's Guide

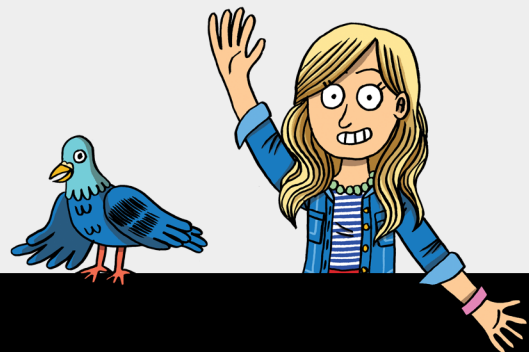
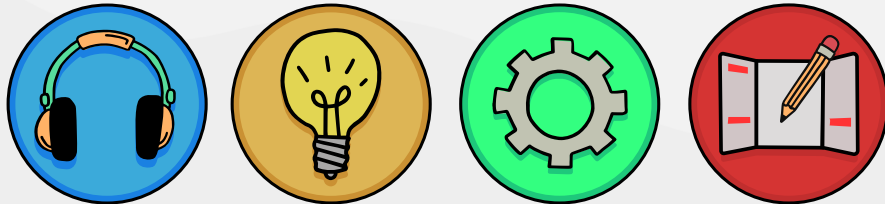


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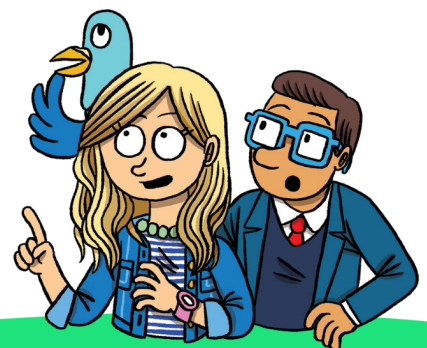
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What Is TinkerClass?

TinkerClass is a project-based-learning tool powered by the #1 podcast for kids, Wow in the World. We seek to help teachers nurture the development of scientific thinking and the exploration of the Engineering Design Process. TinkerClass makes learning fun and engaging by guiding students to listen, wonder, tinker, and ultimately make!



Project Based Learning

We know that implementation of Project Based Learning (PBL) can be a challenge. Our tools allow you to easily prep and customize our high-quality content to seamlessly integrate into your existing curriculum.



21st Century Skills

Our student-centered approach to learning aims to amplify kids' natural sense of wonder, develop their content knowledge skills and nurture their confidence as learners. Building knowledge, life skills, career skills, habits, and the traits needed for student success in today's world are baked into TinkerClass.



NGSS-Aligned

TinkerClass provides high-quality content and a plethora of resources that align with the Next Generation Science Standards (NGSS), cover all science disciplines (Life Sciences, Physical Sciences and Earth Sciences) and many Engineering topics.






Playful Learning Design

TinkerClass was designed with the idea that making learning fun and engaging is more effective for children. Our goal is to help teachers create classroom experiences that are Active, Engaging, Socially Interactive, Iterative, Meaningful, and Joyful.

The Building Blocks of TinkerClass

TinkerClass offers four main activities: Listen, Wonder, Tinker, and Make. These four activities can be done sequentially and all together, independently as stand-alone assignments or in whatever combination supports your curriculum or the amount of time you have available.


Welcome to
TINKER Class

Connect creativity to innovation, laughter to learning, and kids to their world. Bring the WOW to YOUR classroom!

[SIGN UP](#)
[SIGN IN](#)


How It Works

Podcasts + Projects = Podjects! Our free podject platform marvelously brings out the whiz in every student as they listen, wonder, tinker, and make.




Listen

Featuring episodes from the #1 kids podcast Wow in the World, TinkerClass invites students on an auditory adventure about real WOWs in the world of science, technology and innovation.




Wonder

TinkerClass carves out space for creative innovation as students reflect and record all the wows and wonders the episode sparked.




Tinker

Students use their critical thinking skills to sort their wows and wonders, identify questions they might be able to answer, and choose "One Big Wonder" to further investigate.



Make

Student create, collaborate, and build confidence as they plan, investigate, and ultimately present their own WOW findings.





Listen

Let's Flamingle!


How in the world can studying flamingos help humans? And what in YOUR world is wowing you?


Grades: 1st, 2nd-4th, 3rd-5th Subject Areas: Physical Science Topics: Innovation NGSS: 2-PS1-2, K2-ETS1-2, K2-ETS1-3

[LISTEN NOW](#) 



LET'S FLAMINGLE







Wonder

What made you say Wow!


What did you Wonder?


[DOWNLOAD](#) 




Tinker

What "Wonder" would make a great project idea?

[DOWNLOAD](#) 



Make




Guided Design Challenge
PAPER CUP CHALLENGE

This activity aligns with Let's Flamingle

Guided Engineering Activity: Paper Cup Challenge


Explore pressure with a step by step engineering design challenge.

Grades: 1st, 2nd-4th, 3rd-5th Subject Areas: Physical Science Topics: Innovation NGSS: 2-PS1-2, K2-ETS1-2, K2-ETS1-3

[DOWNLOAD](#) 


Make Your Own Experiment

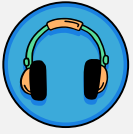
Design, test, and present an experiment!

[DOWNLOAD](#) 

Make Your Own Design Challenge

Build, test, and present a one-of-a-kind design project!

[DOWNLOAD](#) 



Listen

Listening is an important skill children need to develop. With LISTEN teachers assign specific episodes from our curated library of engaging content.

Activities & Resources

- Activity Guide: Can I Print You Some Dessert?**
Check out all our awesome episode activities in one printable bundle.
- Article: Can I Print You Some Dessert?**
Read all about the real-world wonders and wows that inspired this episode.
- Booklist: Can I Print You Some Dessert?**
Explore the episode further with these awesome books.
- Convo Starters: Can I Print You Some Dessert?**
Curious questions to inspire conversations about this episode.
- Recipe: Cheesecake Cupcakes**
These Cheesecake Cupcakes are an easy to make, crowd pleasing dessert.

Did you know that through audio, students can comprehend content that is 2-3 grade levels above their reading level? Listening to episodes of Wow in the World is a great way to deliver rich content aligned with your curriculum.

With episodes about everything from animals to climate change to innovations to space and more, there is truly something in our TinkerClass audio library for everyone! Episodes can be sorted by subject, topic or Next Generation Science Standards (NGSS), allowing you to choose an episode to:

- Connect to a specific topic or unit of study you are planning for.
- Use as a springboard for beginning a new unit of study.
- Cover a specific standard you are required to cover.
- Satisfy or ignite curiosity about a topic.
- Review or deepen content that has been previously covered.





Wonder

Reflection is key to active listening. In the **WONDER** phase students reflect on what they heard and record what made them say, “Wow!” They then move on to brainstorm and record what they are wondering about after listening.

WONDER

It's time to reflect on what you heard! Think about what made you say wow while you were listening. What are some wonders you have after listening? Use this slideshow to record your **WOWS** and **WONDERS**.

PLAY AUDIO INSTRUCTIONS

TINKER Class

Add Your Wows!

What made you say wow while listening? Record all of your **WOWS** on this slide.

Add text or a drawing here!

Add text or a drawing here!

Add text or a drawing here!

Add text or a drawing here!

Add text or a drawing here!

Add text or a drawing here!

Duplicate this slide if you want to add more Wows!

TINKER Class

Add Your Wonders!

What are some wonders you have after listening? Use this slide to record all of your **WONDERS**.

Add text or a drawing here!

Add text or a drawing here!

Add text or a drawing here!

Add text or a drawing here!

Add text or a drawing here!

Add text or a drawing here!

Duplicate this slide if you want to add more Wonders!

TINKER Class

Wows can be anything that surprises or interests the listener while listening.

Wonders are the ideas and questions sparked by the episode. Ideally wonders will be ideas and questions students can go forth and build an experiment or engineering design project around.





Tinker

This step is a great companion to **WONDER** as it guides students to think critically about their initial ideas and work collaboratively toward choosing one “**BIG WONDER**” to investigate. Big Wonders should be ideas they can successfully investigate with an experiment or by designing something to test. This step supports Collaboration and Communication.

TINKER is a great companion to WONDER. While WONDER is meant to be an independent activity, TINKER is meant to function as a collaborative brainstorm.

We recommend that each student choose one Wonder from their independent Wondering to share with the group. Then as a collective, the group will discuss and compare all the ideas and ultimately narrow them down to one **BIG WONDER** that they could potentially build a podject around.

TINKER

It's time to review your wonders and pick one that you will build a podject around! These should be ideas that you can either investigate with an experiment, or design and test.

PLAY AUDIO INSTRUCTIONS

TINKER Class

Our Big Wonders

Everyone will choose one of their individual WONDERS and share it here. Then, as a group, you will discuss them and choose one to move forward with and build a podject around.

Add text or a drawing here!	Add text or a drawing here!	Add text or a drawing here!	Add text or a drawing here!
Name: _____	Name: _____	Name: _____	Name: _____

Duplicate this slide if you have more Wonders!

TINKER Class

The Big Wonder

Copy the wonder from the previous page that your group thinks will lead to the best podject.

Paste your wonder here!

TINKER Class



Make

Here students are guided through an experiment or an engineering design activity. **MAKE** is a place to actively investigate a real-world question, challenge or problem AND a place to record what happens during the experimentation or design process.

Make

Guided Engineering Activity: Spider Web Challenge
Explore how to make a spider web with a step by step engineering design challenge.

Grades: 1st, 2nd-4th, 3rd-5th Subject Areas: Life Science

[DOWNLOAD](#)

Make Your Own Experiment
Design, test, and present an experiment!

[DOWNLOAD](#)

Guided Design Challenge
SPIDER WEB CHALLENGE
This activity aligns with SpiderMindy to the Rescue

Make Your Own Design Challenge
Build, test, and present a one-of-a-kind design project!

[DOWNLOAD](#)



Every episode in the TinkerClass library has three corresponding MAKE options—an affiliated Guided Activity designed specifically for that episode, as well as the Make Your Own Experiment and Make Your Own Engineering Design Activity templates that pair with all of our episodes.

You can browse all of the Guided Activities from the Explore Podjects page by episode title, subject, curriculum topic, or Next Generation Science Standards (NGSS)

Activities Episodes

Search by Keyword Filter by Grade Filter by Subject Area Filter by Topic CLEAR ALL

<p>Make It Louder Explore sound amplification with a step by step engineering design challenge.</p> <p>VIEW PROJECT</p>	<p>Spider Web Challenge Explore how to make a spider web with a step by step engineering design challenge.</p> <p>VIEW PROJECT</p>	<p>Bird Nest Challenge Explore how to make a nest with a step by step engineering design challenge.</p> <p>VIEW PROJECT</p>
<p>Spaghetti Tower Explore how to make the tallest and strongest structure possible with a step by step engineering design challenge.</p> <p>VIEW PROJECT</p>	<p>Marshmallow Challenge Explore how to make a sturdy structure using limited materials with a step by step engineering design challenge.</p> <p>VIEW PROJECT</p>	<p>Can You Move It? Explore how to move heavy objects without electricity with a step by step engineering design challenge.</p> <p>VIEW PROJECT</p>
<p>Paper Airplane Challenge</p>	<p>Paper Cup Challenge</p>	<p>Designing Instruments</p>



Guided vs Make Your Own Activities

Having these two pathways allows you to respond to the variance amongst your students and respond to the time and space you have in your schedules

Guided Design Challenge
SPAGHETTI TOWER
This activity aligns with Pop-Up Pasta Party

The Big Wonder
Engineers identify and try to solve problems they see in the world, which often lead them to create WOW-mazing design solutions. The problem of Big Wonder we will focus on today is, "I wonder how to make the tallest, strongest structure possible using spaghetti tape and string?" Record your ideas here.

THINGS YOU KNOW OR WONDER ABOUT
BUILDING TOWERS

The Plan
MATERIALS
• 20 pieces of dried spaghetti
• Masking tape
• One yard of string
• One large marshmallow
• Clock, timer or stopwatch
Let's get ready, Engineers! Gather the materials and add a photo of them here.

Build & Test
Here we go, it's design time! Follow these steps to investigate The Big Wonder.
WOW-TO:
Step 1: Set a timer for 18 minutes.
Step 2: The challenge is to build the tallest spaghetti tower possible using all of the suggested materials and nothing else.
Step 3: The only rules here are that the structure must stand on its own and support the marshmallow on top of the structure.

Improve & Retest
Reflect on your work. How might you improve things? Maybe it's time to try using the materials in different ways.

Reflect
WOW FINDINGS!
Add text, photos, video, or audio here!
What WOWed you?
What did you learn?

Guided Podjects provide more scaffolding as they invite students to follow along, step-by-step, through a TinkerClass science experiment or engineering design challenge. They provide high-quality, ready-to-go content, perfect for first-time users, younger grade levels or teachers short on planning time.

Make Your Own Design Challenge
Your Title Here
Build, test and present a one-of-a-kind design podject!

The Big Wonder
Engineers identify and try to solve problems they see in the world. What problem or BIG WONDER would you like to try to solve? Record it here.
Hint: Make sure your BIG WONDER is something you can attempt to design and build.

The Ideas
Think big! What Ideas do you have for attempting to solve your chosen problem or BIG WONDER? Record all of your ideas here.

The Plan
Now you will choose one of your ideas and make a clear plan or diagram of what you will be designing to solve this BIG WONDER or problem. Make sure your work is clearly labeled!
WOW-TO:
Add text, photos, videos, or audio here!

Build & Test
MATERIALS
Okay Engineers, it's time to bring your plan to life! Gather the materials you plan to use and then document them on this slide.

Epic Fails & Improvements
How will you know if your creation solved the problem you identified? Test it out a few times and record the results here. Then think about how you might improve your design.

Make Your Own Podjects are more open-ended and lay out a general framework for planning and conducting an experiment or building and then testing an engineering challenge but let the user come up with the content themselves.

What Is a Podject?

A podject is any type of project or activity inspired by or connected to listening to a Tinkercast podcast (podcast + project = podject)! We at Tinkercast believe that Podject-Based-Learning is a wonderful way to engage and excite students.

A podject can be...

- Individual and / or partner or group work
- Big or small—try just one step of TinkerClass, or try all four—Listen, Wonder, Tinker, and Make
- An active investigation of a real-world question, challenge or problem
- A place to record what happens during the experimentation or design process
- A multimedia presentation that helps students show what they have learned
- Something to be shared



Guided Design Challenge
SPAGHETTI TOWER
This activity aligns with Pop-Up Pasta Party

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THINGS YOU KNOW OR WONDER ABOUT
BUILDING TOWERS

The Plan
MATERIALS

- 20 pieces of dried spaghetti
- Masking tape
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- One large marshmallow
- Clock, timer or stopwatch

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Add your photo here.

Improve & Retest
Reflect on your work. How might you improve things? Maybe it's time to try using the materials in different ways.

Reflect
Add text, photos, video, or audio here!

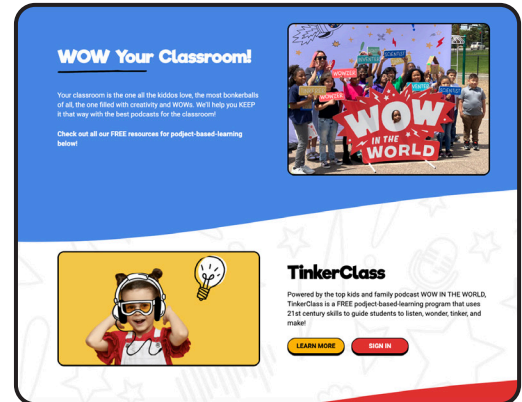
WOW FINDINGS!
What WOWed you?
What did you learn?



Preparing to Use TinkerCast

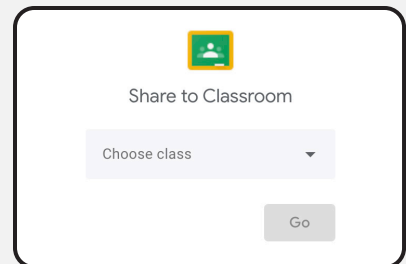
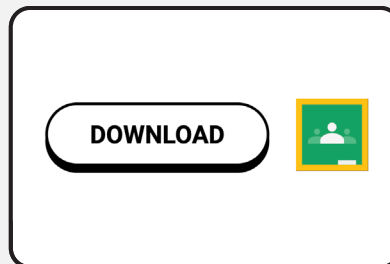
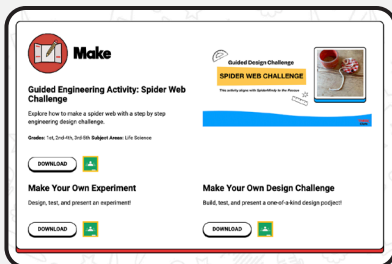
Familiarizing Yourself

Prior to using TinkerClass with students, we recommend that you spend some time exploring the tool yourself. We also recommend that you take a look at the TinkerClass resources which can be found on the For Teachers page.



Assigning TinkerClass

TinkerClass was designed with all teachers in mind — those with limited planning time, those who love to customize everything under the sun, those with little exposure to PBL and those who are science specialists. Use our Guided and Make Your Own Activities as is, or customize them to suit your needs.



Readying Devices

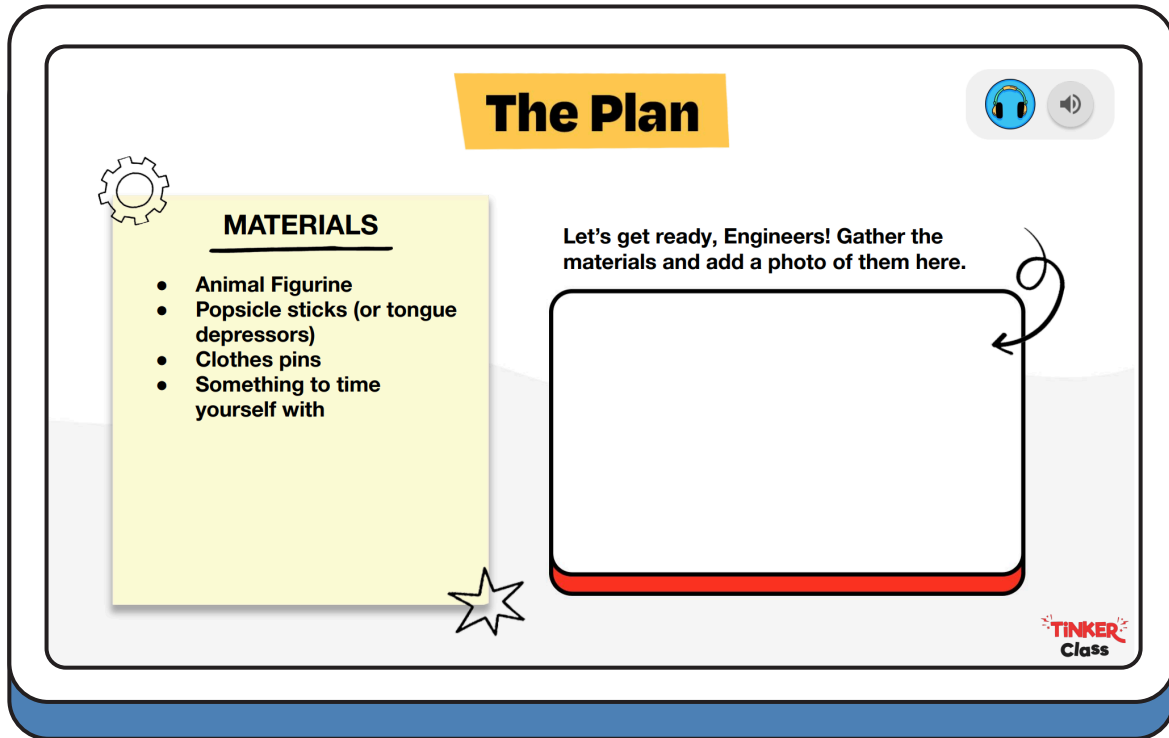
TinkerClass is a web-based program that works on all internet browsers and is best suited to be used with tablets or computers. How many devices you need will depend on how you plan to have students grouped and how you want them working. We recommend that you have available:

- a class set of tablets or computers with no more than 2 children sharing a device
- a class set of headphones, particularly for LISTEN

Prior to using TinkerClass with students, we recommend that you launch it on whatever device(s) will be used so that it is ready the day of. If headphones will be used, they should also be tested prior to use.

Gathering & Organizing Materials

Guided Activities always include a list of materials that will be needed. We recommend previewing that list and making sure you have those items on hand.



Make Your Own Activities will also require materials, but it is up to the student(s) to decide on the materials they will use. We suggest setting up a tinkering area in your classroom where all sorts of materials are stored and made accessible to students.

Here is a simple list of suggested materials to get you started.

- empty bottles & bottle caps
- empty yogurt, applesauce or pudding cups
- plastic & paper cups
- cardboard tubes
- wheels of any kind
- white paper, construction paper
- empty cereal boxes or any other cardboard food packaging
- packing supplies such as foam, bubble wrap, packing peanuts
- rubber bands
- yarn, string, twine
- tape, tape, and more tape
- liquid glue, glue sticks, hot glue guns
- markers, colored pencils, crayons, etc.
- paint, paint pens, watercolors
- scissors, hole punches

Glossary

Big Wonders

Testable or buildable questions that students could build a project around.

Guided Activities

The Google Slideshow templates designed to help students follow along, step-by-step, through an experiment or engineering design project connected to a particular episode.

LISTEN

This activity supports students in listening to a podcast from our curated library of episodes.

MAKE

This activity supports students as they actively investigate a real-world question, challenge or problem.

Make Your Own Activities

The Google Slideshow templates are designed to support students to either design, test and present their own unique experiment or to build, test and present a one-of-a-kind design project.

NGSS

Next Generation Science Standards, a multi-state effort in the United States to create new education standards for science education.

PBL

Project Based Learning is a teaching method in which students learn by actively engaging in real-world and personally meaningful projects.

Playful Learning

The idea that making learning fun and engaging makes it more effective for children.

Podject

Any type of project or activity inspired by or connected to listening to a Tinkercast podcast (podcast + project = podject)!

TINKER

This activity supports students in thinking critically about their ideas and working collaboratively or tinkering together to choose one “Big Wonder” to investigate.

WONDER

This activity supports students in reflecting on what they heard and recording their observations and questions.

Wonders

The questions that come up after listening to a podcast.

Wows

The observations we make that make us say, “Wow!”.

21st Century Skills

This refers to the knowledge, life skills, career skills, habits, and traits that are critically important to student success in today’s world. They include collaboration, communication, content, critical thinking, creative innovation, and confidence.