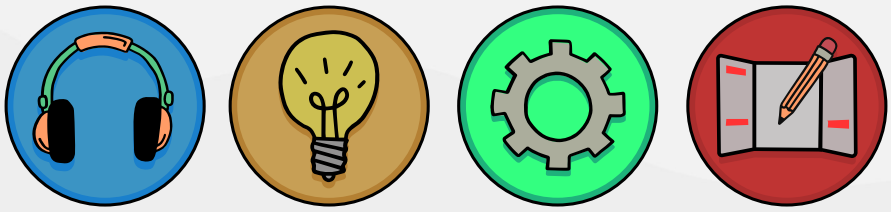
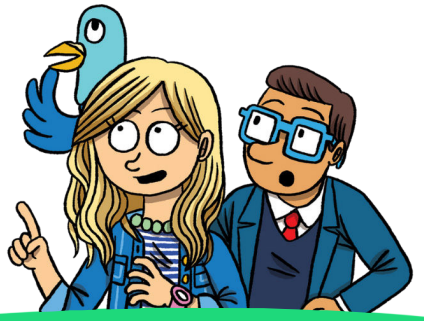
# TiNKER Class

# Teacher's Guide



# Table of Contents





# What Is TinkerClass?

TinkerClass is a FREE project-based-learning tool powered by top kids and family podcasts Wow in the World, Two Whats?! And A Wow!, and Who, When, Wow!. TinkerClass makes learning fun and engaging by guiding students to listen, wonder, tinker, and ultimately make like scientists, engineers, and historians.

## 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.

## Standards Aligned

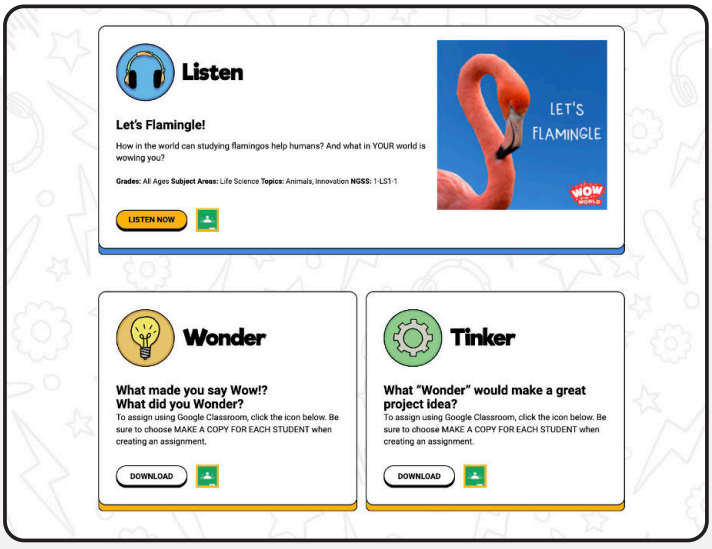
TinkerClass provides high-quality content and a plethora of resources that align with ELA, Social Studies and Next Generation Science Standards (NGSS) to help you support, nurture, and bring out the WOW in your students.

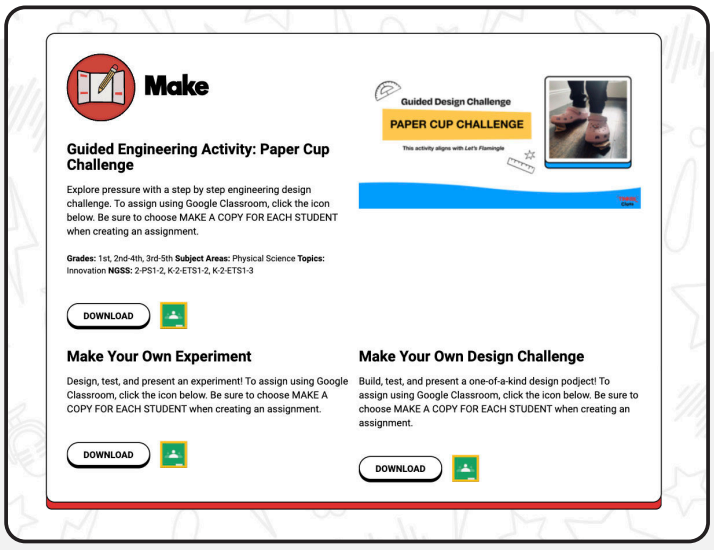
## Playful Learning Design

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

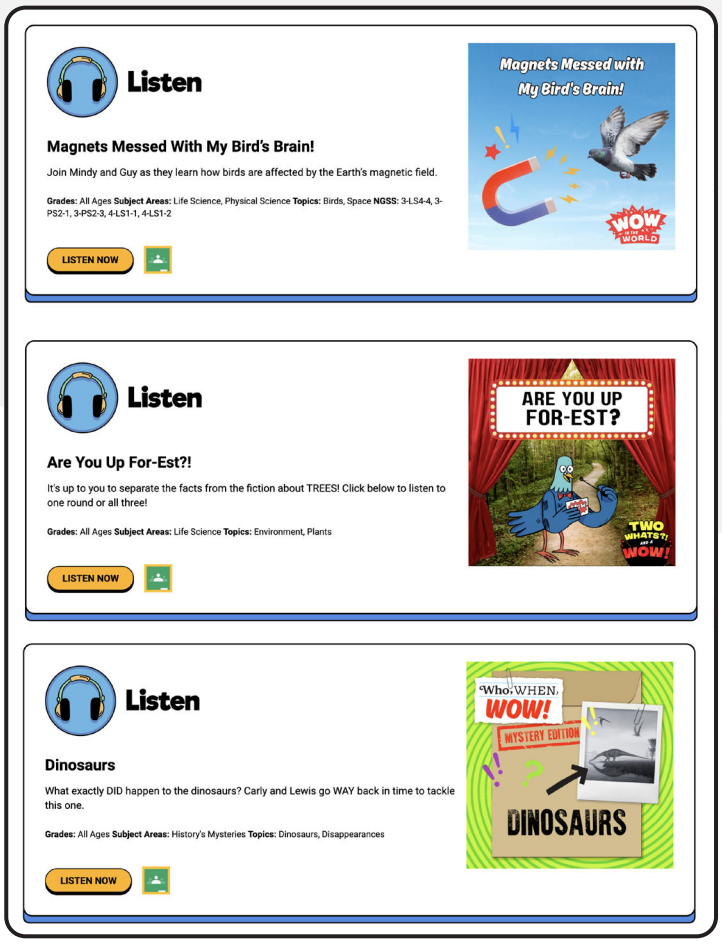
TinkerClass offers four main activities: Listen, Wonder, Tinker, and Make. These four activities can be done sequentially and all together, independently as stand-alone assignments or in whatever combination supports your curriculum or the amount of time you have available.

# Listen

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




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

With episodes about everything from animals and climate change to innovations and mysteries from history 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.





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

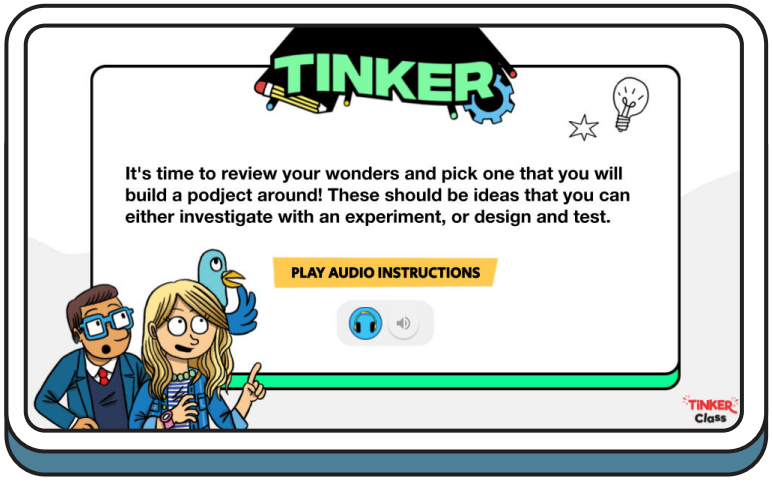
Wonders are the ideas and questions sparked by the episode. Ideally wonders will be ideas and questions students can go forth and build an experiment or engineering design project around.

# Tinker

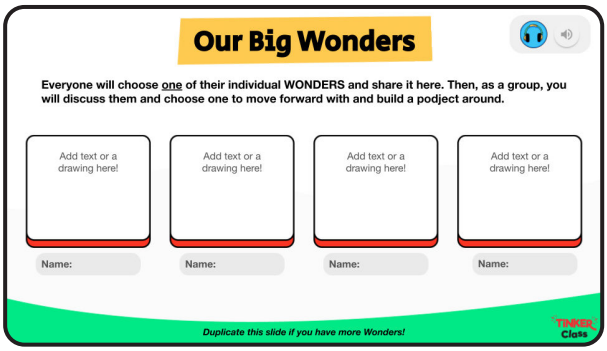
This step guides students to think critically about their initial ideas and work collaboratively toward choosing one **“BIG WONDER”** to investigate. Big Wonders should be ideas that can be researched, investigated with an experiment, or explored by designing something to test. This step supports Collaboration 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.

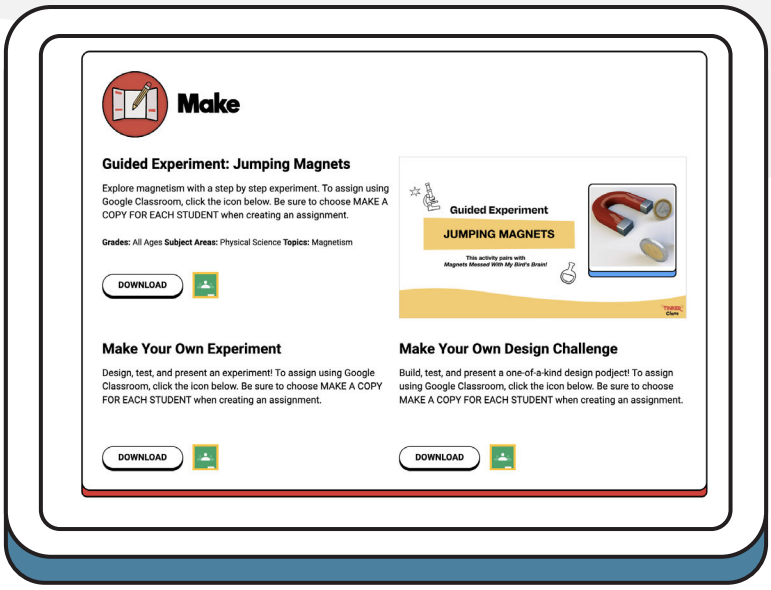


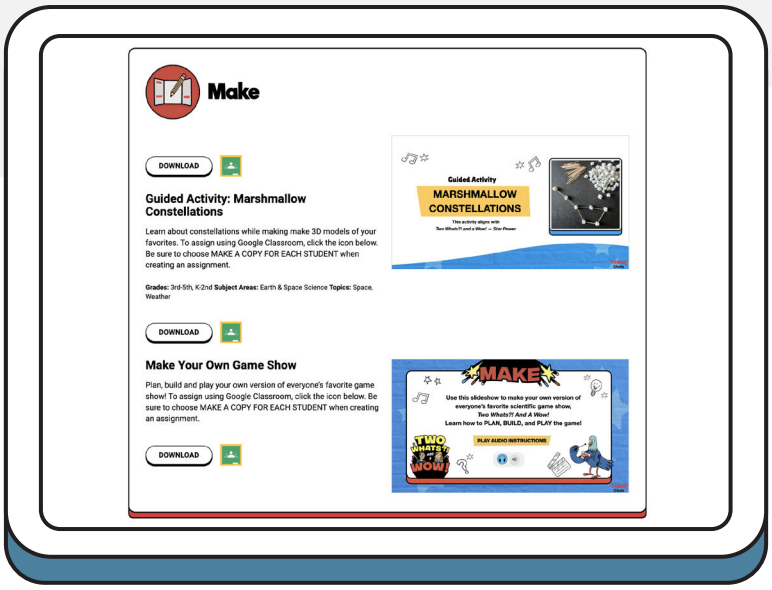





# Make

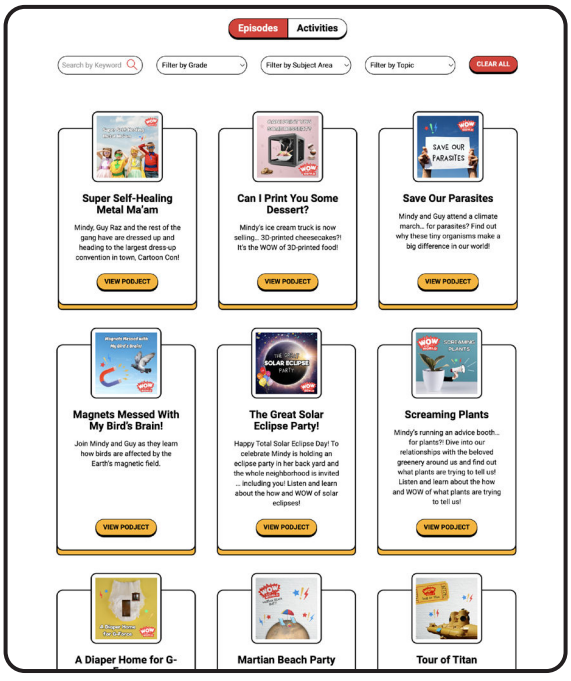
**MAKE** is a place for students to create, collaborate, and build confidence as they plan, investigate, and present a hands-on project about a real-world question, challenge, or event. Students can either be guided through an activity or create their own projects.




Every episode in the TinkerClass library has a set of corresponding MAKE activities—some that are designed specifically for a particular episode or the affiliated podcast at-large (Guided Activities) and some that are more open-ended and meant to be built out by the user (Make Your Own Activities) and designed to pair with all of the episodes of a particular podcast.

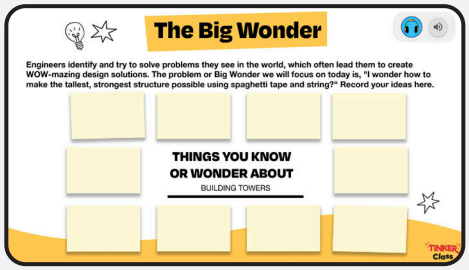
You can browse all of the Guided Activities available for a particular podcst from the Explore Podjects page. Activities can be sorted by Grade, Subject Area, Topic, or Next Generation Science Standards (NGSS).

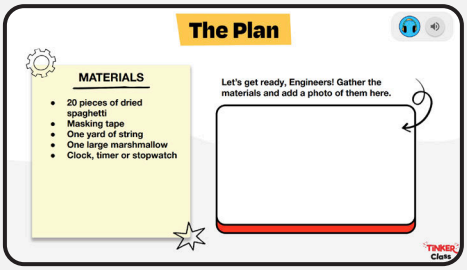


# Guided vs Make Your Own Activities

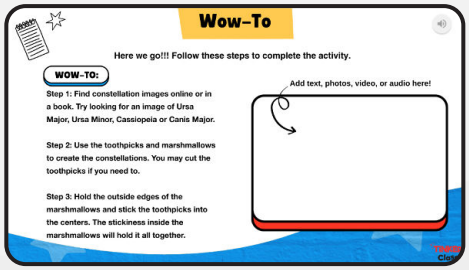
**Having these two pathways allows you to respond to the variance amongst your students and respond to the time and space you have in your schedules**

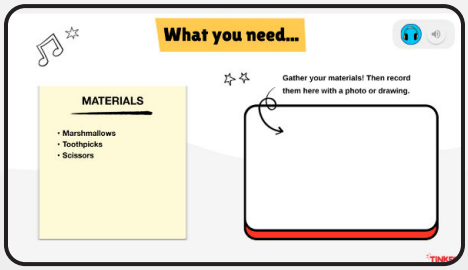
**Guided Activities** provide high-quality, ready-to-go content, perfect for first-time users, younger grade levels or teachers short on planning time. Guided Activities provide more scaffolding as they invite students to follow along, step-by-step, through a science experiment, engineering design challenge or to explore an episode further with creative writing prompts or thought organizer.

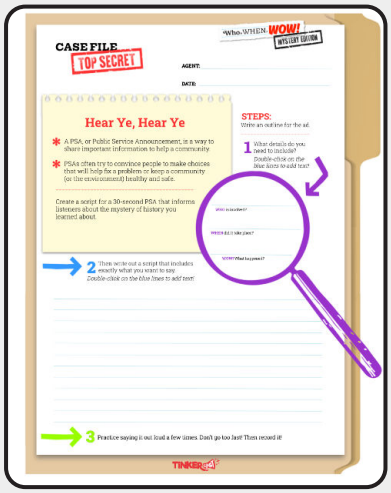



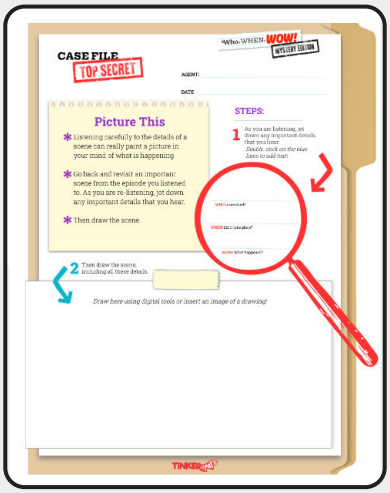

*Wow in the World* Guided Activity


*Two Whats?! And A Wow!* Guided Activity

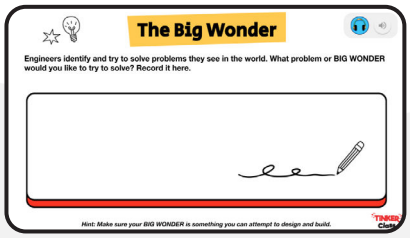


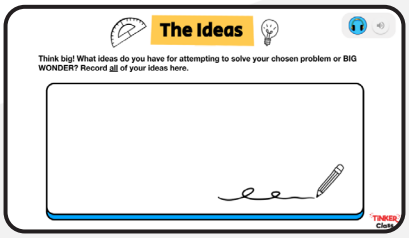





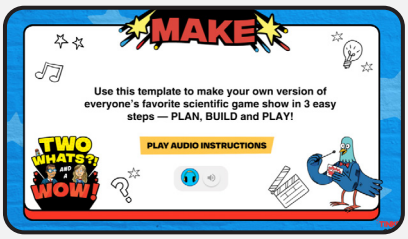
*Who, When, Wow!* Guided Activities

**Make Your Own Activities** are more open-ended and lay out a general framework for either planning and conducting an experiment, building and then testing an engineering challenge, designing a game show or producing a podcast.

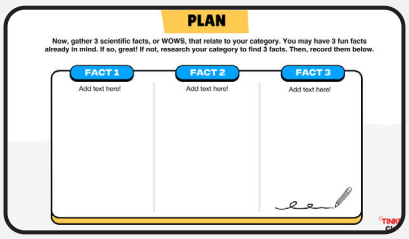



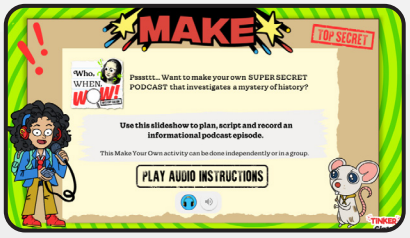

*Wow in the World* Make Your Own Design Challenge

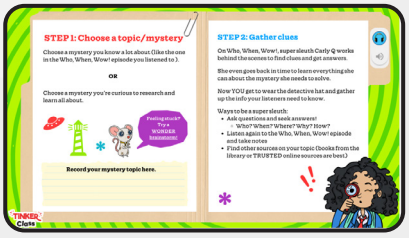


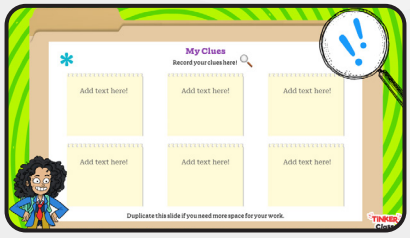





*Two Whats?! And A Wow!* Make Your Game Show



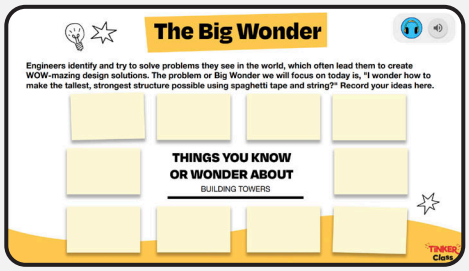

*Who, When, Wow!* Make Your Own Podcast

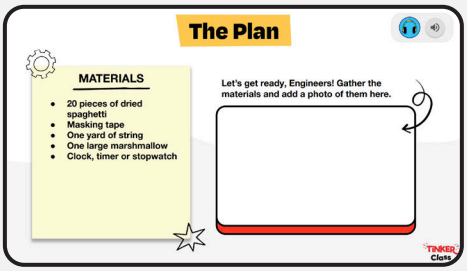
# What Is a Podject?

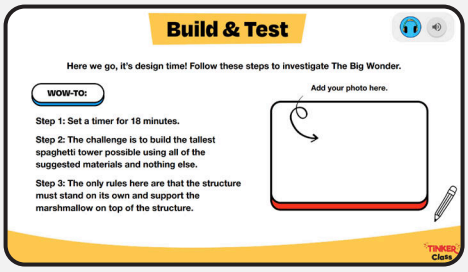
A podject is any type of project or activity inspired by or connected to listening to a Tinkercast podcast (podcast + project = podject)! We at Tinkercast believe that Podject-Based-Learning is a wonderful way to engage and excite students.

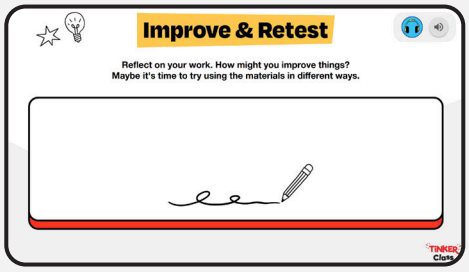
A podject can be...

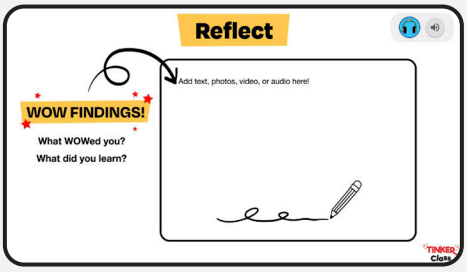
- Individual and / or partner or group work
- Big or small—try just one step of TinkerClass, or try all four—Listen, Wonder, Tinker, and Make
- An active investigation of a real-world question, challenge or problem
- An exploration of a mystery of history
- A place to record what happens during the experimentation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

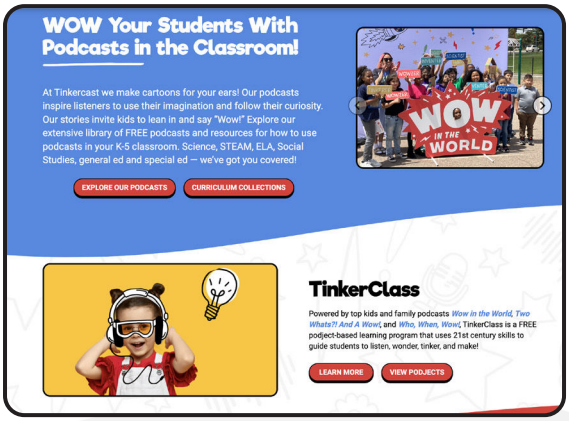



# Preparing to Use TinkerClass

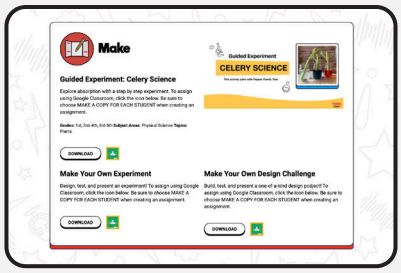
## Familiarizing Yourself

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 our website.

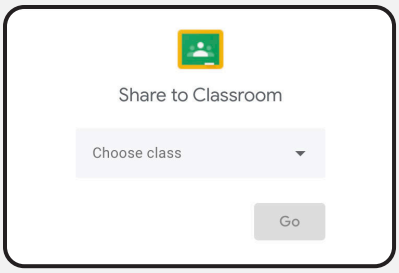



## Assigning TinkerClass

TinkerClass was designed with all teachers in mind — those with limited planning time, those who love to customize everything under the sun, those with llittle 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

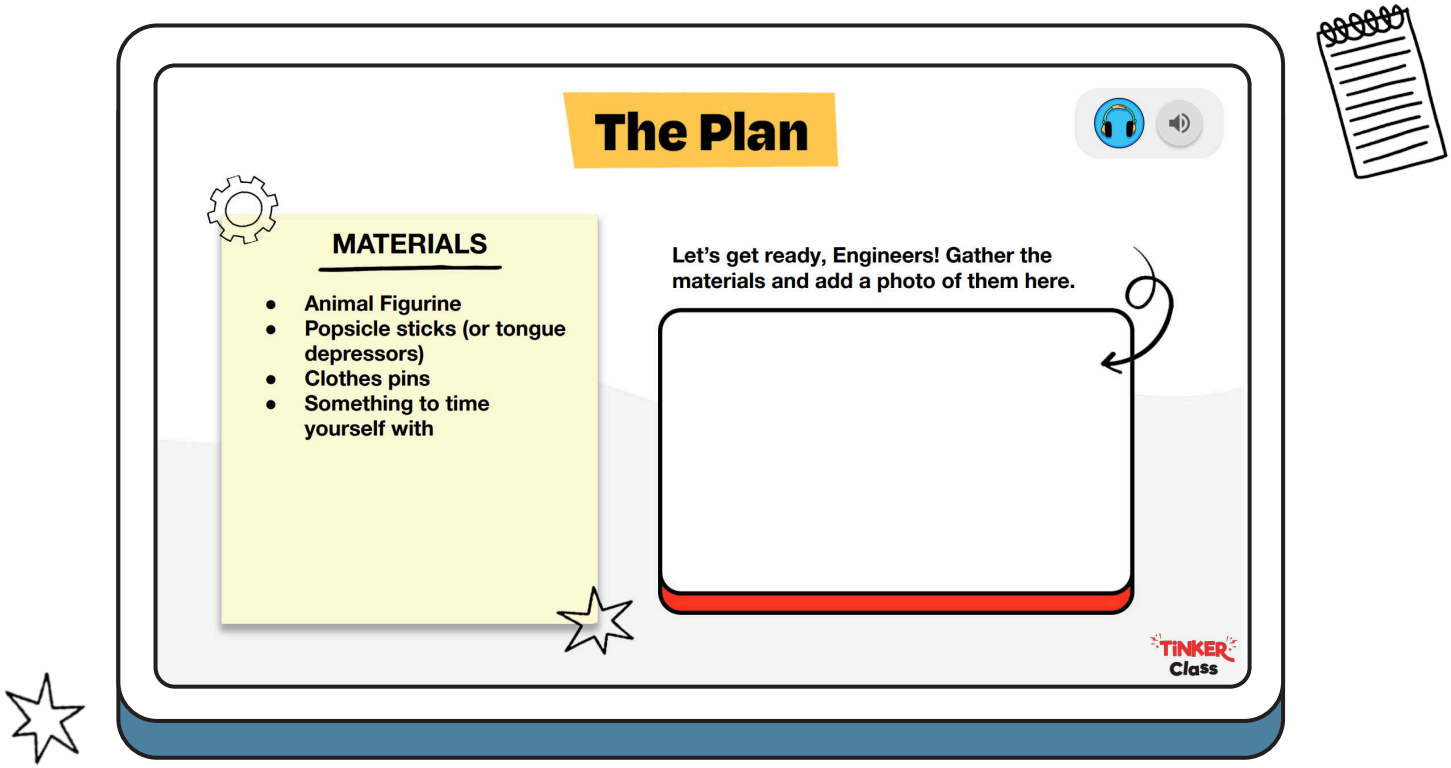
TinkerClass is a web-based program that works on all internet browsers and is best suited to be used with tablets or computers. How many devices you need will depend on how you plan to have students grouped and how you want them working. We recommend that you have available:

- 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 may 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 may 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

Guided Activities are designed with step-by-step instructions to help students further investigate the 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

Activities are designed to support students to either design, test and present their own unique experiment, build, test and present a one-of-a-kind design project, or plan and produce a game show or podcast episode.

## 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.v