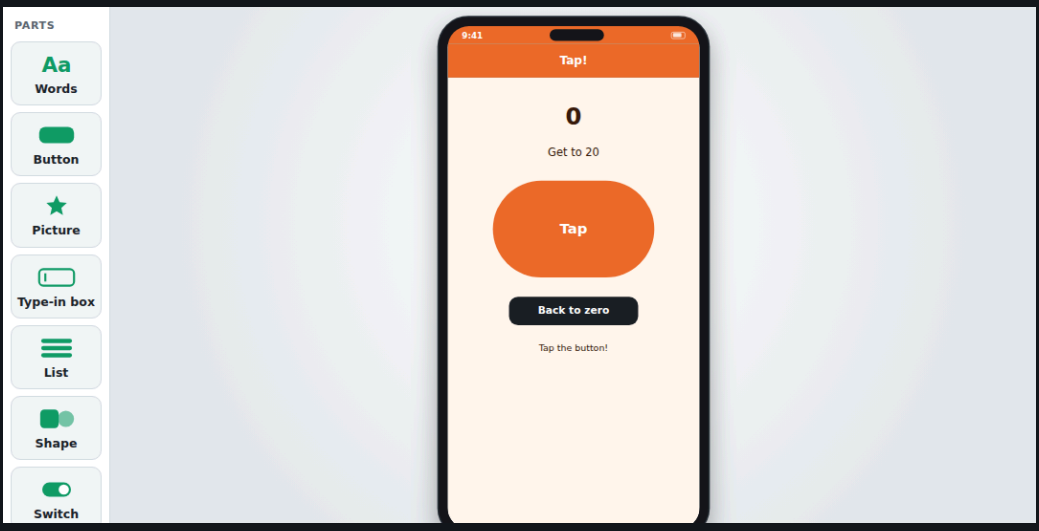
mytekDev

App Maker: The App Remembers

Grades 6-8 · 45 minutes

Computer science · Technology



Slides, rubric and answer key **Print and go** **No student accounts**

Chromebook friendly

What's included

- A one-page overview: objectives, essential question, vocabulary, standards and assessment
- A ten-minute walkthrough to rehearse before class, and background in plain words for the teacher
- A 45-minute lesson sequence: warm-up, direct instruction, guided practice, independent practice, closure
- Slides for the board: a PowerPoint file that also opens in Google Slides
- A student worksheet with a QR code and a table for predicting a number after each tap
- A 3-question exit ticket, two to a page, with an answer key
- A rubric: 3 criteria, 4 levels, scored out of 12
- Differentiation for English learners, students with IEPs or 504 plans, and students who need more support or more challenge
- Cross-curricular extensions, and notes for teaching it in grades 4 and 5 and in grades 9 and 10
- Standards: CSTA 2017

App Maker: The App Remembers

Grades 6-8 · 45 minutes · Computer science, Technology

Students open an app with a big 0 and a Tap button. Tapping does nothing to the 0, because the 0 is only words. They give the app a number to remember, tell the button to add 1 to it, and put the number's name in the words so the screen shows it. Three separate things: where the value is kept, what changes it, and what shows it. Then they make a Back to zero button work, and choose whether the number is kept when the app closes.

At a glance

ESSENTIAL QUESTION

How does an app remember something, and how does what it remembers get onto the screen?

OBJECTIVES

Students will be able to:

- explain that a variable is a named place where a program keeps a value that can change
- tell apart the three jobs in a counter: keeping the value, changing it, and showing it
- build a button step that adds to a number and one that sets it to a value
- predict the value of a variable after a sequence of taps

VOCABULARY

Variable, Value, Step, Starting value, Display

STANDARDS

1B-AP-09, 2-AP-11

TIME AND MATERIALS

45 minutes, grades 6-8.

- One computer or Chromebook per student
- A projector
- The worksheet and exit ticket, one copy each per student
- The rubric, one copy per student if you grade the work

PREP

Make copies of the worksheet and exit ticket. Before class, open mytekdev.com/try/appmaker?lesson=the-app-remembers&ref=tpt-appmaker-2 once on a student computer: it opens on an orange app with a big 0 and a Tap button, and checks that your school's filter allows the app. Run it yourself, about ten minutes: press Try it and tap Tap (the 0 does not change); press Keep designing, click an empty part of the phone and click + A number (it is called score); click the Tap button and click + Change a number (it reads add 1 to score); click the big 0,

ASSESSMENT

- Formative: the questions under What to look for, asked while students work, and the exit ticket (answer key included).
- Summative: the worksheet, scored with the rubric.

TECHNOLOGY AND PRIVACY

Runs in any browser, Chromebooks included, with nothing to install. Students need no account and no email: the link works signed out, and nothing they do is stored on our server unless they choose to save. The app they build runs on a phone drawn on the page, so no phones are needed. Making a link for a real phone needs a free account and is not part of this lesson.

delete the 0 and click { score } under
Show a number; press Try it and tap.

Lesson sequence

MINUTES	STAGE	WHAT YOU DO	WHAT STUDENTS DO
0 to 5	**Warm-up** Hook	Show the title, essential question and Today I can slides (about 1 minute). Then the warm-up: where is the score when it is not on the screen? Write two answers on the board.	Answer the warm-up on the worksheet.
5 to 12	**Direct instruction (I do)** Model it	Project the app with the starter open. Press Try it and tap Tap five times: the 0 stays 0. Press Keep designing, click the big 0 and show that it is a Words part whose words are "0". Say that an app has to be given a place to keep a number, and that programmers call that place a variable. Name the three jobs: keep it, change it, show it. **It's working when:** With nothing picked, the panel on the right shows the whole screen and, lower down, Numbers the app remembers. Click an empty part of the phone to get there.	Watch, and fill in the vocabulary on the worksheet.
12 to 22	**Guided practice (We do)** Make it count	Students open the link or scan the QR code. A short guide walks them through adding a number, adding a step to the button, and showing the number in the words. When apps are counting, ask: which of the three things you did made the number change? **Watch for:** Students who type { score } before making the number see { score } on the phone, braces and all. That is the app saying it knows no number by that name. Have them add the number and watch the braces turn into 0.	Follow the guide until the app counts.
22 to 38	**Independent practice (You do)** Back to zero, and the table	Students make Back to zero work: click it, click + Change a number, and change add to set it to, with 0. Then they fill in the table on the worksheet before tapping, and check it in Try it. Early finishers change add 1 to add 5, or add a second number. Walk the room with the What to look for questions. **If they ask:** "The number is 3. You tap Tap twice and Back to zero once, then Tap once. What does it show? Now try it." Predict first	Make Back to zero work, predict the table, then check it.
38 to 45	**Closure** Showcase and exit ticket	Show the Showcase slide. Have one student take { score } out of the words on the projector, tap five times, and put it back: the number shows 5. Go back to the warm-up answers. Hand out the exit ticket.	Answer the exit ticket.

Before you teach: a ten-minute walkthrough

Open mytekdev.com/try/appmaker?lesson=the-app-remembers&ref=tpt-appmaker-2. A short guide opens over the app. The phone shows an orange app: a big 0, the words Get to 20, a round Tap button, a Back to zero button, and the words Tap the button!

1. **It cannot count.** Press Try it and tap Tap. Nothing changes. Press Keep designing.
2. **Keep.** Click an empty part of the phone. On the right, under Numbers the app remembers, click + A number. A row appears: score, starts at 0, with a chip that says Starts again each time.
3. **Change.** Click the Tap button on the phone. Under When tapped, first, click + Change a number. The row reads add, 1, to, score.
4. **Show.** Click the big 0 on the phone. In The words on it, delete the 0. Under "Show a number, or what was typed, in these words" click { score }. The phone shows 0 again.
5. **Try it.** Press Try it and tap: 1, 2, 3. Press Keep designing, click Back to zero, click + Change a number, and change add to set it to, leaving 0. Try it: the number goes back to 0.

> The moment that lands is the phone showing 0 before and after. It looks the same and it is a different thing: words before, a number now.

Background for the teacher

A variable is a named place where a program keeps a value. The name stays the same and the value changes. In App Maker a variable is called a number the app remembers, it holds whole numbers only, and it has a starting value that it takes each time the app opens.

Students run three ideas together: the value, the thing that changes it, and the thing that shows it. This lesson pulls them apart on purpose. The value lives in the app whether or not any words show it. Take { score } out of the words, tap five times, put it back, and the screen shows 5.

A button's steps run in order from the top, and a button can hold up to four. Add 1 changes the value by one. Set it to replaces the value, whatever it was. That difference is the whole of Back to zero.

The chip beside each number says Starts again each time or Kept on the phone. A kept number is stored on the device and comes back when the app is opened again there. On the page this lesson uses it comes back after a reload.

App Maker is not a text programming language. Students build each rule as a sentence and the app writes the code, which they can read and cannot edit. It has no loops and no lists, a button holds one But if, and numbers are the only kind of data an app remembers. What it does have is the real thing in small: events, a sequence of steps, variables and a conditional, in an app that runs.

What to look for

Ask these while students work. A student who has understood the lesson can answer them without help:

- The app showed 0 before you started and 0 after you finished the guide. What changed?
- Which of the three things you did makes the number go up?
- What is the difference between add 1 and set it to 0?

- If two buttons both add 1 to score, how many numbers does the app remember?
- What would the phone show if you typed { points } in the words?

> The first question is the real test: a student who says the 0 used to be words and is now the number has the idea of a variable being shown.

Cross-curricular extensions

- Math: a button adds 3 each tap, starting from 0. What does it show after 7 taps? After how many taps does it pass 100?
- Science: build a tally counter for an observation, with one button for each thing you are counting.
- English: write the instructions for a counter as three sentences a person could follow with paper and a pencil.
- At home: find three numbers an app on a family phone remembers for you.

Vocabulary

Variable	A named place where a program keeps a value that can change. App Maker calls it a number the app remembers.
Value	What a variable holds right now.
Step	One thing a button does when it is tapped. Steps run in order, from the top.
Starting value	What a variable holds when the app opens.
Display	To show a value on the screen. The value exists whether or not anything shows it.

Differentiation

ENGLISH LEARNERS

- Keep the vocabulary slide up, and point at the screen as you say each word: the cards under the phone and the sentences in the panel carry the meaning.
- Pair each learner with a partner; the table is numbers.
- Accept the three jobs drawn as a picture with arrows: number, button, words.

STUDENTS WITH IEPS OR 504 PLANS

- Pair students for the table, one at the app and one recording.
- Zoom the browser to 125%; the phone and the panel stay readable.
- Allow the first four rows of the table only, where the IEP allows a modified assignment.

STUDENTS WHO NEED MORE SUPPORT

- A sentence starter: "The number is kept in ___, changed by ___, and shown by ___."
- A check-in after the guide: every student's app counts before anyone starts Back to zero.

STUDENTS READY FOR MORE

- Change add 1 to add 5. Then make a second button that takes away 1.
- Click an empty part of the phone and switch the number from Starts again each time to Kept on the

- Give the first two rows of the table filled in.

phone. Reload the page. What is different?

- Add a second number called taps and show both. Can one button change two numbers?

Adapting for other grades

Younger students: In grades 4 and 5, do the guide together on the projector, with pairs sharing a computer, one clicking and one recording. Skip the third rubric row; total 8, and 6 meets the objectives. Use the words "the number the app remembers" until students have made one, then give them the word variable.

Older students: In grades 9 and 10, have students press See the code and find three lines: the one that makes the number, the one inside the button that changes it, and the function that writes it into the words. Ask why the starting value is written once and the add is written inside the button.

Student worksheet

Name: _____ Date: _____

Open the app: scan the QR code, or go to mytekdev.com/try/appmaker?lesson=the-app-remembers

Essential question: How does an app remember something, and how does what it remembers get onto the screen?

Warm-up: A game shows your score in the corner. Where is the score when it is not on the screen?

_____

1. **Vocabulary.** Variable, value, step, starting value, display: write each in your own words.

2. **Predict, then check.** The number starts at 0. Write what it shows after each of these, before you tap: Tap. Tap. Tap. Back to zero. Tap. Tap. Then check each one in Try it.

3. **Three jobs.** Keeps the value: _____ Changes it: _____ Shows it: _____

1. The phone showed 0 before you gave the app a number and 0 after. What was different?

2. What is the difference between add 1 and set it to 0? When would you use each?

App Maker: The App Remembers

Exit ticket

Name: _____

1. A variable is (A) a button that changes color (B) a named place where a program keeps a value that can change (C) the words on a screen

2. A number starts at 0. A button adds 1 to it. After the button is tapped 4 times and then a button that sets it to 0 is tapped once, the number is (A) 4 (B) 5 (C) 0

3. An app is counting, but the screen never shows the count. What is missing?

App Maker: The App Remembers

Exit ticket

Name: _____

1. A variable is (A) a button that changes color (B) a named place where a program keeps a value that can change (C) the words on a screen

2. A number starts at 0. A button adds 1 to it. After the button is tapped 4 times and then a button that sets it to 0 is tapped once, the number is (A) 4 (B) 5 (C) 0

3. An app is counting, but the screen never shows the count. What is missing?

Answer key: exit ticket

QUESTION	ANSWER	WHY
1	B	The name stays the same and the value changes.
2	C	Set it to replaces the value, whatever it was.
3	Words that show the number	Accept: { score } in some words, something to display it. The value exists whether or not it is shown.

Rubric

Score each row from 1 to 4.

Name: _____

CRITERIA	4 EXCEEDS	3 MEETS	2 APPROACHING	1 BEGINNING
The app counts	The number goes up by one for each tap, and Back to zero sets it to 0.	The number goes up by one for each tap.	A number was made but does not change or does not show.	No number made.
Keep, change, show	Names all three: the number keeps the value, the button step changes it, the words show it.	Names two of the three.	Names one.	No answer.
The table	Every row predicted before tapping, checked, and any wrong row corrected.	Most rows right.	Some rows filled in.	No table.

Total: ____ / 12. A score of 9 or more meets the objectives.

Standards

Variables standards from CSTA 2017. Students create a variable, change its value from a button and display it. The grade 6 to 8 standard is met in part.

FRAMEWORK	CODE	GRADES	STANDARD	HOW THE LESSON MEETS IT
CSTA 2017	**1B-AP-09**	3-5	Create programs that use variables to store and modify data.	Students give an app a variable, add to it and set it from buttons, and show it in words on the screen.
CSTA 2017	**2-AP-11**	6-8	Create clearly named variables that represent different data types and perform operations on their values.	In part. Students name a variable and perform operations on its value. App Maker's variables hold whole numbers only, so different data types are not covered.

Checked November 2026 against: CSTA 2017 K-12 standards progression chart.

Optional: save student work in a free class

The whole lesson runs at the link on the worksheet, with no accounts and no sign-up.

To keep students' work, and see it all in one place, make a free class. It takes about ten minutes, once, and covers every lesson in this series: mytekdev.com/tools/class-setup

Students in a class open mytekdev.com/tools/app-maker/lessons/the-app-remembers/start instead of the worksheet link. Each one gets their own copy of the starter, and the same link reopens it next time.

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