Coloring Sheets: STEM Celebs

About This Activity

Introduction
In this activity, learners will be shown a coloring sheet with an image and facts about a famous historical computer scientist, programmer, or inventor whose achievements changed the way that people live. Learners will read the facts about the historical figure while they color the image. Each of the 18 different variations of the coloring sheets focuses on a different historical figure. There is a wide variety of representation so that learners can see themselves in the shoes of these innovators and know that they can change the world through computer science too.

Objective
Upon completion of this activity, learners will:
- know how several historical figures changed the way people live through computer science achievements

What You Need

Depending on your learner's reading level, this activity requires a medium level (for readers) or a high level (for pre-readers) of facilitator participation.	Each coloring sheet will take about 10 minutes to complete depending on the learner's skills.	You will need the following supplies: • Coloring supplies

Facilitator's Instructions

1. Print out the Learner's Sheet pages.
2. Gather your coloring supplies.
3. Tell your learner about this activity: "Today, we're going to learn about someone who changed the world with computer science! We can read about the person on the page while you color in their picture."
4. Have your learner start coloring.
5. For pre-readers, you will need to read the facts about the historical figure to them. Readers can read on their own while they color. Be prepared to help them with any technical words that they might need help with.

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Facilitator's Instructions Cont'd

6. Congratulate your learner on a job well done!
7. Have your learner complete the other coloring sheets to keep learning about more people who have changed the world.

Bonus Challenge
Ask your learner which innovator(s) they like the most and why. Encourage your learner to keep reading and learning more about them. Be sure to tell them that they can achieve things as major as these innovators too, especially if they related to any innovators in particular.

Standards Addressed

CSTA
1A-IC-16, Impacts of Computing, Culture: Compare how people live and work before and after the implementation or adoption of new computing technology.

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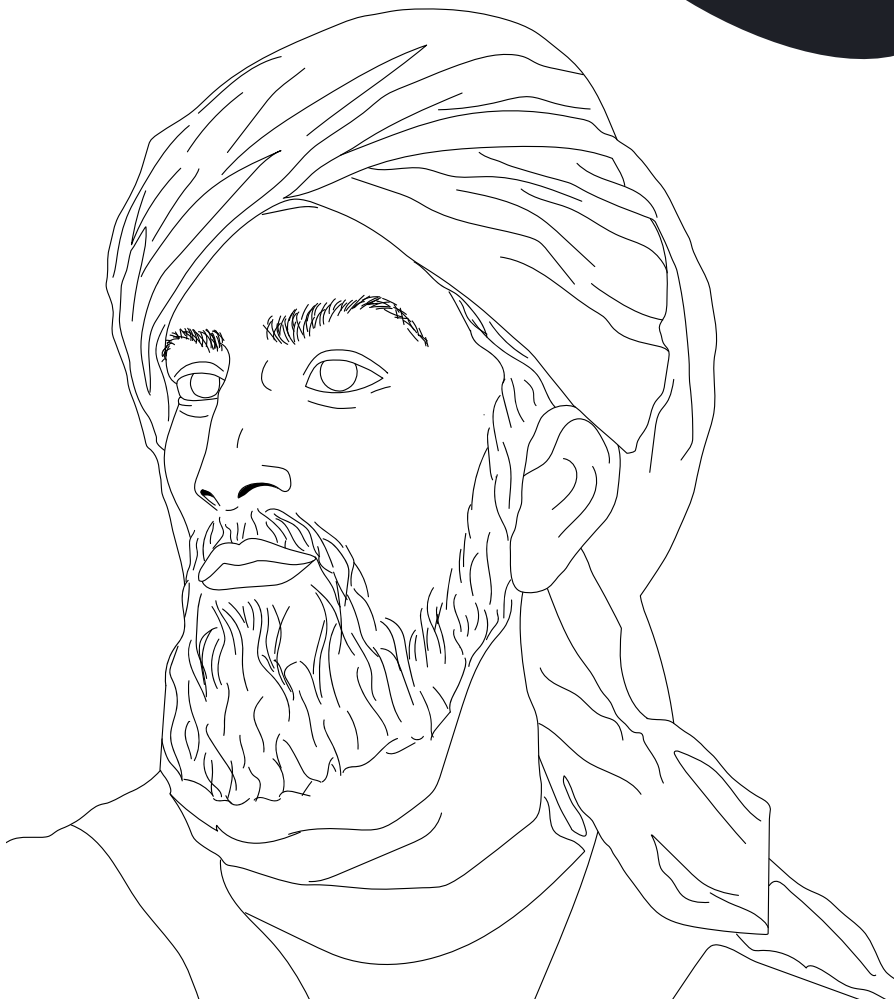
Coloring Sheets: STEM Celebs #1

Directions

Learn about people who changed the world with computer science! Color the page and read the facts about them.

Ismail al-Jazari

- From Mesopotamia.
- Father was the chief engineer of the palace and later took over this job.
- Liked building machines to make life easier for people.
- Best known for inventing early robots, which are called automatons.
- Built machines that were beautiful as well as useful.
- Wrote and illustrated a book about his inventions.

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Coloring Sheets: STEM Celebs #2

Directions

Learn about people who changed the world with computer science! Color the page and read the facts about them.

What You Need

✓ Crayons, markers, or colored pencils

Joseph Marie Jacquard

- French inventor.
- Made looms to make weaving cloth easier. These are called Jacquard looms.
- Looms created patterns in the weave of the fabric by reading arrangements of holes on punched cards.
- The punched cards the looms used were also used in early computers.

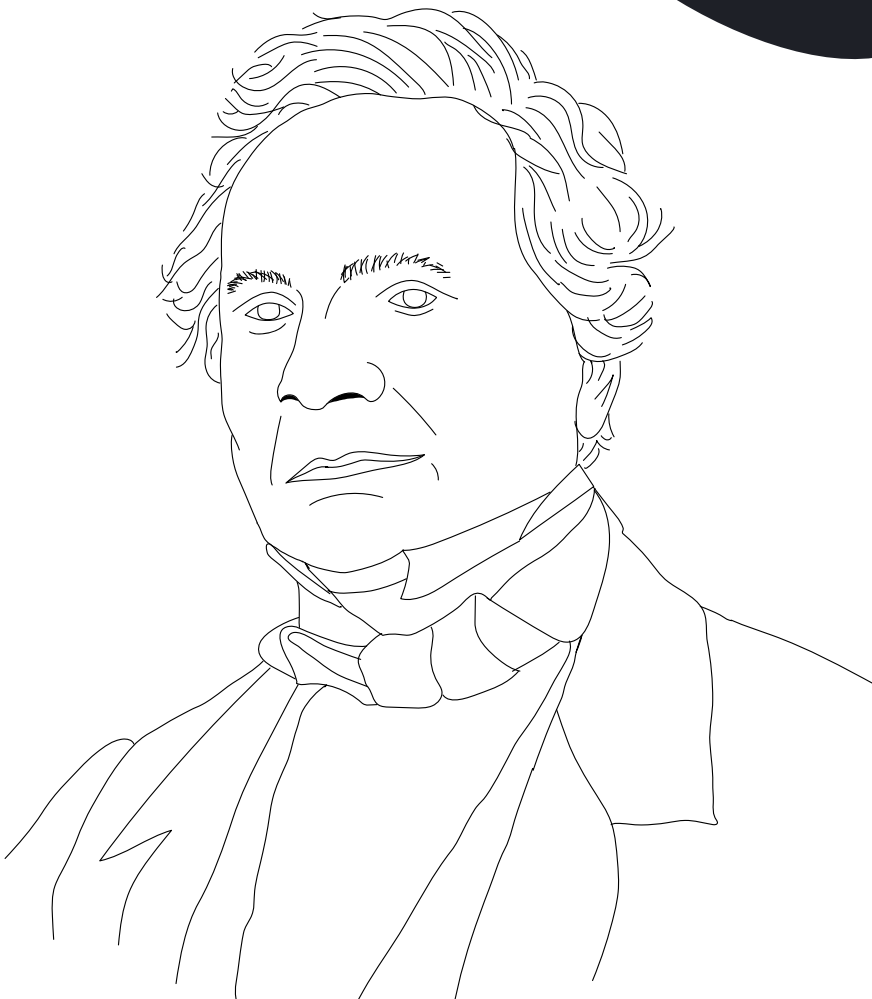PROJECT STEM

Coloring Sheets: STEM Celebs #3

Directions

Learn about people who changed the world with computer science! Color the page and read the facts about them.

What You Need

✓ Crayons, markers, or colored pencils

Charles Babbage

- Often called the father of the computer.
- Wanted to make a machine to do math to help avoid mistakes that were made when large math problems were done by hand.
- His first attempt was called the Difference Engine, but it was too expensive to build.
- His next machine was called the Analytical Engine. This machine used the same punched cards used by Jacquard looms for cloth weaving, but to perform math problems instead.

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Coloring Sheets: STEM Celebs #4

Directions

Learn about people who changed the world with computer science! Color the page and read the facts about them.

What You Need

✓ Crayons, markers, or colored pencils

Ada Lovelace

- World's first computer programmer.
- Her mother hired tutors to teach her math and science at home because she liked them so much.
- Her tutor introduced her to Charles Babbage.
- Using Babbage's Analytical Engine, she made the first computer algorithm.

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Coloring Sheets: STEM Celebs #5

Directions

Learn about people who changed the world with computer science! Color the page and read the facts about them.

What You Need

✓ Crayons, markers, or colored pencils

Alan Turing

- Known as a genius even as a child.
- Called the father of computer science.
- Wrote an important paper about devices that could do any calculation as long as it was an algorithm. These devices, called Turing Machines, are still used today.
- Codebreaker during World War II and came up with ways to break enemy codes faster than ever.
- Designed the first stored-program computer. It was called the Automatic Computing Engine.

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Coloring Sheets: STEM Celebs #6

Directions

Learn about people who changed the world with computer science! Color the page and read the facts about them.

Mavis Batey

- Expert codebreaker by the age of 19.
- Hired to break codes by looking for coded messages in newspaper ads.
- Broke a code from an Italian coding machine that no one else had been able to crack.
- The codes that she broke helped make the turning point of World War II a success.
- She wasn't allowed to talk about her job as a codebreaker (it was all top secret!), so she worked as a garden historian after the war was over.

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Coloring Sheets: STEM Celebs #7

Directions

Learn about people who changed the world with computer science! Color the page and read the facts about them.

What You Need

✓ Crayons, markers, or colored pencils

Hedy Lamarr

- She was a big movie star in the 1930s and 1940s.
- She was also an inventor!
- She invented an untraceable radio signal that could not be jammed. This was called a frequency-hopping signal system.
- Today, her invention is still used in Bluetooth technology.

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Coloring Sheets: STEM Celebs #8

Directions

Learn about people who changed the world with computer science! Color the page and read the facts about them.

What You Need

☑ Crayons, markers, or colored pencils

Grace Hopper

- Was in the US Naval Reserve and worked on computers there.
- Invented the term "debugging" after she took apart her computer to fix it and found a moth was inside of it.
- Part of the team that made the first computer language compilers.
- She made an easier programming language that used words instead of math codes. It is called COBOL and is still used today.
- Received a Presidential Medal of Freedom.

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Coloring Sheets: STEM Celebs #9

What You Need

✓ Crayons, markers, or colored pencils

Directions

Learn about people who changed the world with computer science! Color the page and read the facts about them.

Evelyn Boyd Granville

- The 2nd African-American woman to earn a PhD in math.
- As a computer programmer at IBM, she designed software to study satellite orbits.
- Worked on NASA's Apollo program.
- While at NASA, she helped send a man to the moon through her work calculating orbits and trajectories for the engineers.

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Coloring Sheets: STEM Celebs #10

Directions

Learn about people who changed the world with computer science! Color the page and read the facts about them.

Mary Jackson

- Worked for NASA as a human computer by doing complex math calculations for the space program.
- NASA's first female African-American engineer.
- Later changed jobs at NASA to help women and minorities find jobs in STEM (Science, Technology, Engineering, and Math).
- Her work at NASA is shown in the 2012 movie *Hidden Figures.*

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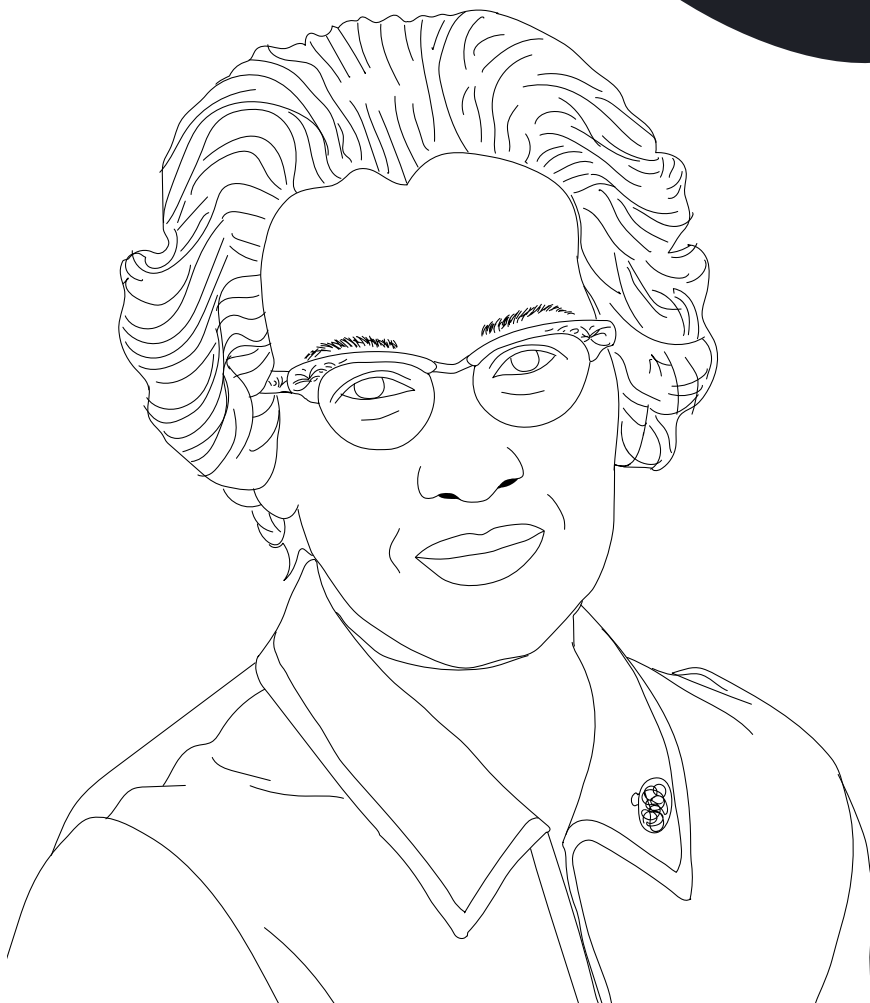# Coloring Sheets: STEM Celebs #11

Directions

Learn about people who changed the world with computer science! Color the page and read the facts about them.

Katherine Johnson

- Took so many math classes in college that the college had to add more math classes.
- Worked for NASA as a human computer by analyzing data from planes and figuring out, through math, why some planes crashed.
- The math she did for NASA allowed the first American to go into space and, later, helped astronauts go to the moon.
- She checked math that computers did to make sure it was correct!
- Received the Presidential Medal of Freedom.
- Her work at NASA is shown in the 2012 movie *Hidden Figures*.

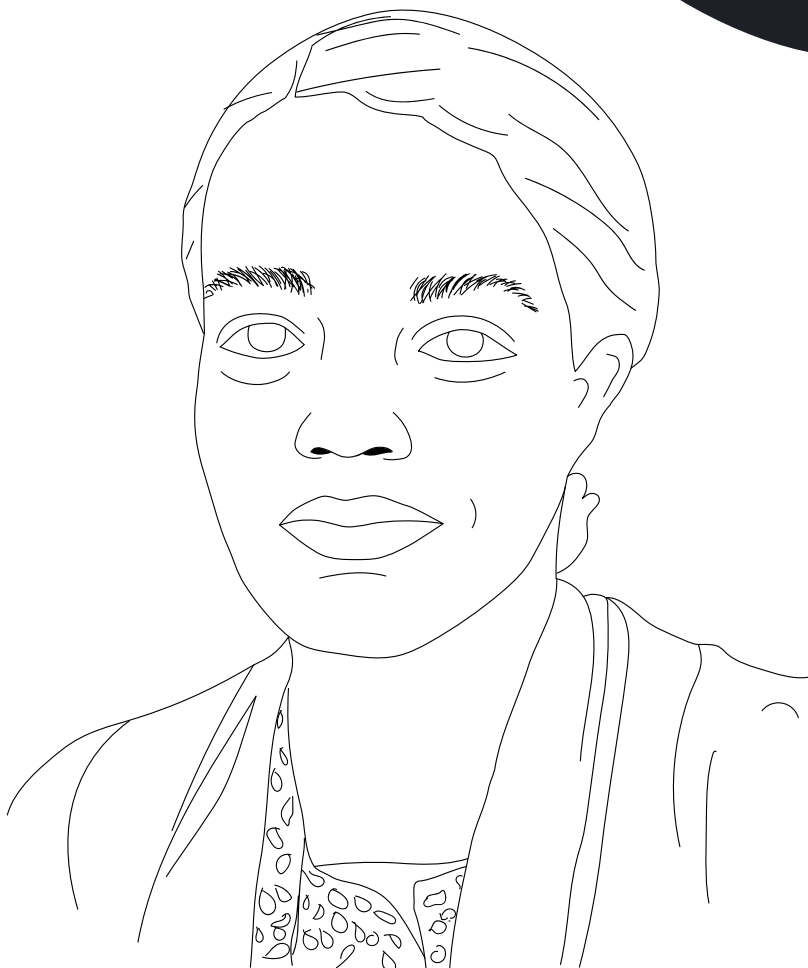PROJECT STEM

Coloring Sheets: STEM Celebs #12

Directions

Learn about people who changed the world with computer science! Color the page and read the facts about them.

Dorothy Vaughn

- Worked for NASA as a human computer on a team made up of African-American women.
- As head of that team, she was NASA's first African-American supervisor.
- Taught her team new skills and computer languages to prepare human computers for the age of electronic computers.
- Has a crater on the moon named after her for her work with NASA.
- Received the Congressional Gold Medal of Honor.
- Her work at NASA is shown in the 2012 movie *Hidden Figures*.

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Coloring Sheets: STEM Celebs #13

Directions

Learn about people who changed the world with computer science! Color the page and read the facts about them.

Margaret Hamilton

- Came up with the term "software engineering."
- Wrote software for space missions that helped astronauts go to the moon for the first time.
- During the Apollo 11 mission to the moon, her software helped the astronauts land even though they forgot to flip a switch because she built the software to do the more important things first, like land.

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Coloring Sheets: STEM Celebs #14

Directions

Learn about people who changed the world with computer science! Color the page and read the facts about them.

What You Need

✓ Crayons, markers, or colored pencils

Carol Shaw

- First female video game designer at Atari.
- Programmed popular games for one of the first home video game systems.
- Joined another game company called Activision in 1982.
- At Activision, she designed a game called River Raid, which was so successful she was able to retire early.
- Received the 2017 Industry Icon Award at The Game Awards.

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Coloring Sheets: STEM Celebs #15

What You Need

- ✓ Crayons, markers, or colored pencils

Directions

Learn about people who changed the world with computer science! Color the page and read the facts about them.

Steve Wozniak

- One of the founding members of Apple.
- Built the first personal computer with color graphics. It was called the Apple II and was one of the first successful personal computers in the world.
- Designed the first universal remote control.
- Started a school to teach about computers online.

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Coloring Sheets: STEM Celebs #16

Directions

Learn about people who changed the world with computer science! Color the page and read the facts about them.

Mark Dean

- An engineer for IBM.
- Owned 3 of the 9 patents for IBM's first personal computer.
- Developed the color computer monitor.
- The first African-American IBM Fellow, which is the company's highest honor.
- Inducted into the National Inventors Hall of Fame.
- Led his team to create the world's first gigahertz processing chip, which did one billion calculations per second.
- Currently teaches at the University of Tennessee.

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Coloring Sheets: STEM Celebs #17

Directions

Learn about people who changed the world with computer science! Color the page and read the facts about them.

What You Need

✓ Crayons, markers, or colored pencils

Tim Berners-Lee

- Built a computer out of an old TV while in college.
- Engineer at CERN.
- Invented the hyperlink, which is part of what drives the Internet.
- Later combined hyperlinks with computer networking to invent the World Wide Web.
- Knighted by Queen Elizabeth II.

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Coloring Sheets: STEM Celebs #18

Directions

Learn about people who changed the world with computer science! Color the page and read the facts about them.

What You Need

✓ Crayons, markers, or colored pencils

Larry Page & Sergey Brin

- The team that invented Google.
- Met while attending Stanford University.
- Studied existing computer search engines and invented better algorithms for them, which led to Google.

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