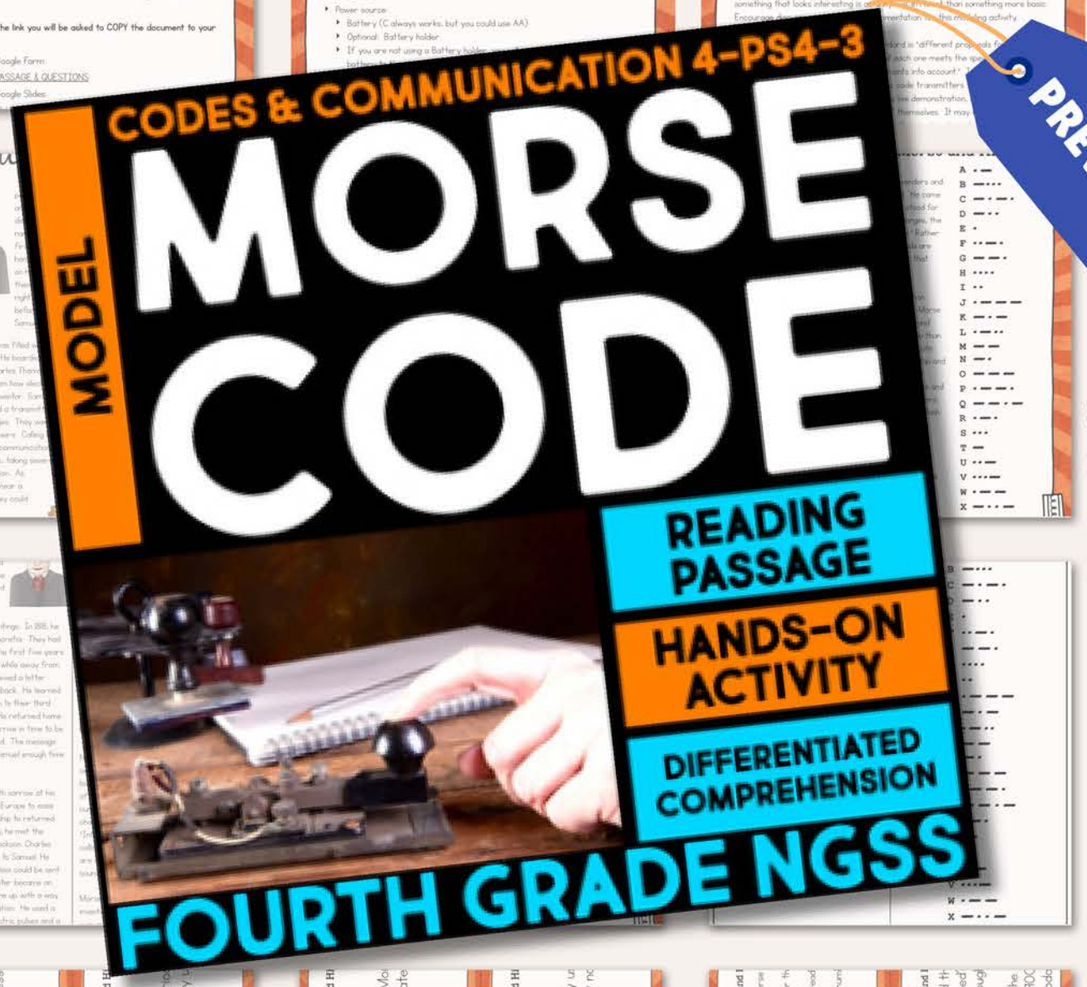


SOS! Learn to Send Secret Signals

4TH GRADE

MODEL MORSE CODE

4th Grade Hands-on Science

KEEP SCROLLING TO SEE WHAT'S INSIDE!

YOU WILL LOVE THIS BECAUSE



Hands-On Learning

Students actively build and test their own Morse code transmitters. Encouraging problem-solving and logical reasoning.



Aligned with NGSS

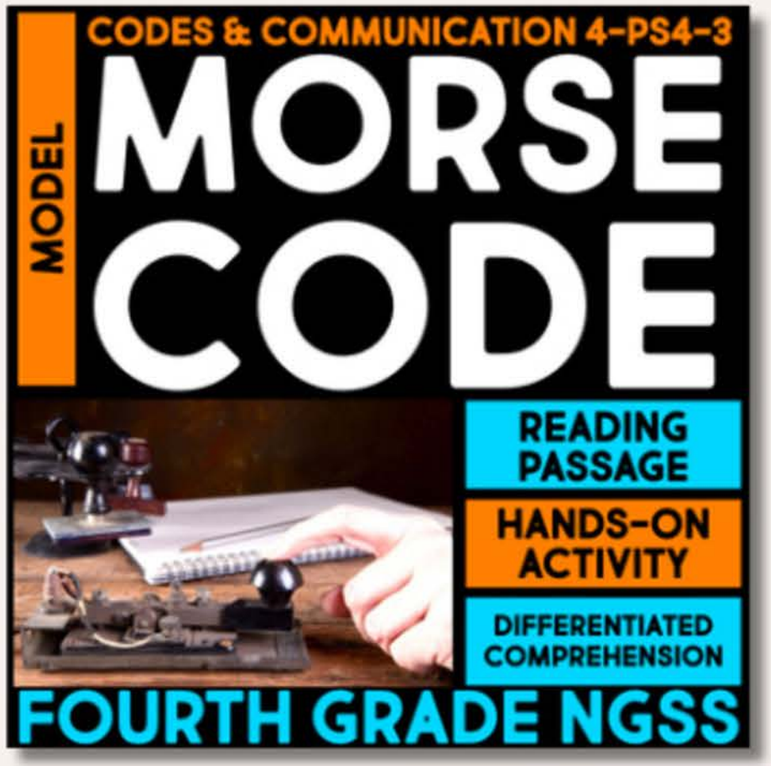
These lesson plans aren't just random; they're laser-focused on Next Generation Science Standards. No more curriculum guesswork!



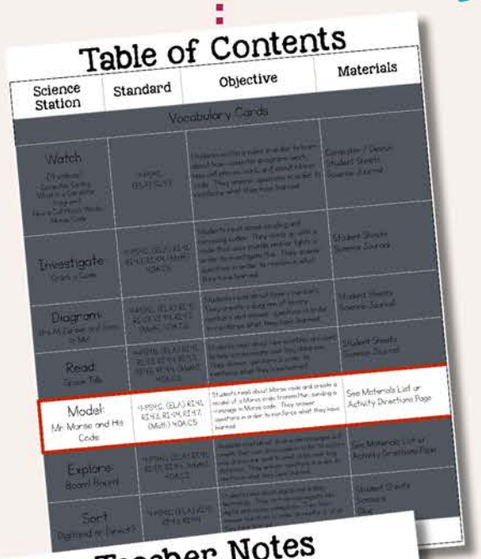
Print & Digital Flexibility

Includes worksheets, Google Slides, and Google Forms for seamless integration into in-person, hybrid, or virtual classrooms.

ACTIVITY OVERVIEW



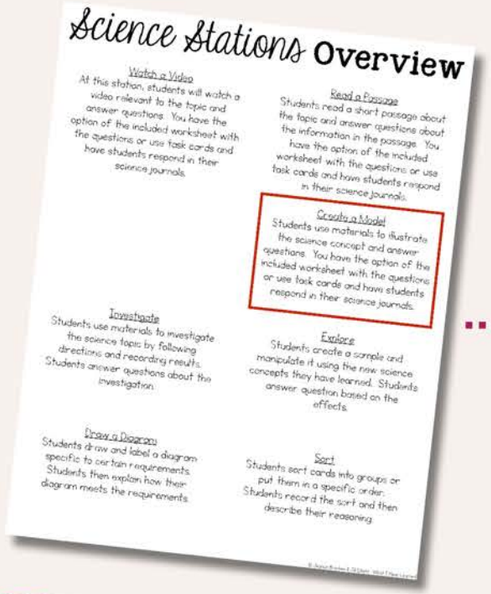
- Your students will read a passage.
- Then your students will create a model.
- Then, lastly, they will answer differentiated questions.


Table of Contents

Science Station	Standard	Objective	Materials
Vocabulary Cards			
Watch			
Investigate			
Diagram			
Read			
Model: Mr. Morse and His Code			See Materials List or Activity Directions Page
Explore			
Sort			

Table of Contents

Table of Contents


Science Stations Overview

Watch a Video
At this station, students will watch a video relevant to the topic and answer questions. You have the option of the included worksheet with the questions or use task cards and have students respond in their science journals.

Read a Passage
Students read a short passage about the topic and answer questions about the information in the passage. You have the option of the included worksheet with the questions or use task cards and have students respond in their science journals.

Create a Model
Students use materials to illustrate the science concept and answer questions. You have the option of the included worksheet with the questions or use task cards and have students respond in their science journals.

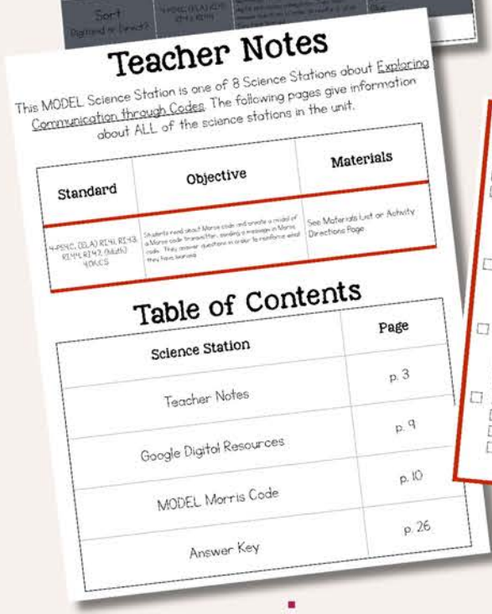
Investigate
Students use materials to investigate the science topic by following directions and recording results. Students answer questions about the investigation.

Explore
Students create a sample and manipulate it using the new science concepts they have learned. Students answer question based on the effects.

Draw a Diagram
Students draw and label a diagram specific to certain requirements. Students then explain how their diagram meets the requirements.

Sort
Students sort cards into groups or put them in a specific order. Students record the sort and then describe their reasoning.

Science Station Overview


Teacher Notes

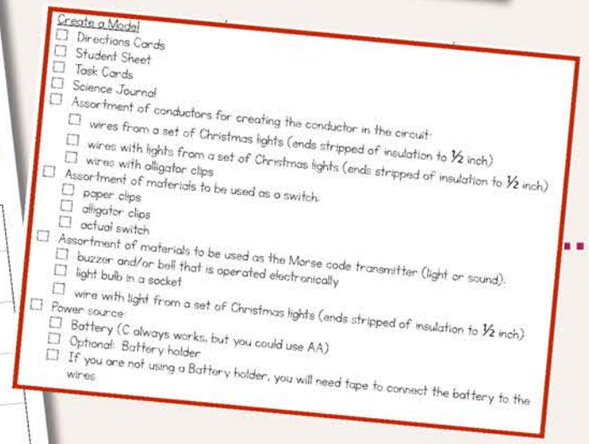
This MODEL Science Station is one of 8 Science Stations about Exploring Communication through Codes. The following pages give information about ALL of the science stations in the unit.

Standard	Objective	Materials
[illegible]	Students read about Morse code and create a model of a Morse code transmitter, sending a message in Morse code. They answer questions in order to reinforce what they have learned.	See Materials List or Activity Directions Page

Table of Contents

Science Station	Page
Teacher Notes	p. 3
Google Digital Resources	p. 9
MODEL Morris Code	p. 10
Answer Key	p. 26

Table of Contents / Teacher's Notes


Create a Model

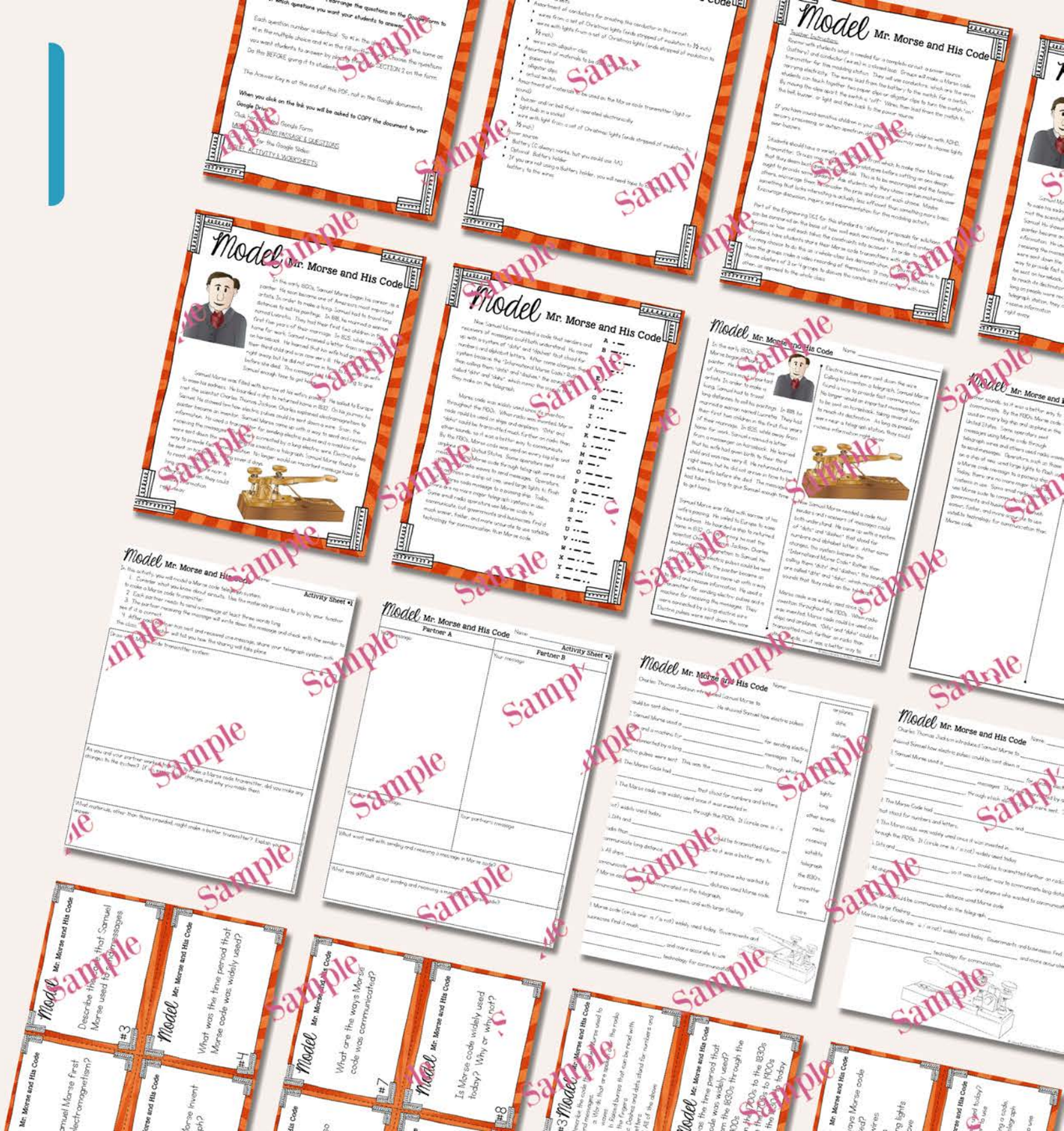
- ☐ Directions Cards
- ☐ Student Sheet
- ☐ Task Cards
- ☐ Science Journal
- ☐ Assortment of conductors for creating the conductor in the circuit:
  - ☐ wires from a set of Christmas lights (ends stripped of insulation to ½ inch)
  - ☐ wires with lights from a set of Christmas lights (ends stripped of insulation to ½ inch)
  - ☐ wires with alligator clips
- ☐ Assortment of materials to be used as a switch.
  - ☐ paper clips
  - ☐ alligator clips
  - ☐ actual switch
- ☐ Assortment of materials to be used as the Morse code transmitter (light or sound).
  - ☐ buzzer and/or bell that is operated electronically
  - ☐ light bulb in a socket
  - ☐ wire with light from a set of Christmas lights (ends stripped of insulation to ½ inch)
- ☐ Power source:
  - ☐ Battery (C always works, but you could use AA)
  - ☐ Optional: Battery holder
  - ☐ If you are not using a Battery holder, you will need tape to connect the battery to the wires

Materials Checklist

WHAT'S INCLUDED

MODEL SCIENCE STATION

- Teacher Notes
- Student Text in two formats
- Student Instructions
- Activity Sheets
- Differentiated Questions
- Answer Key
- Google Form™
- Google Slides™



READING PASSAGE & ACTIVITIES

HANDS-ON ACTIVITIES

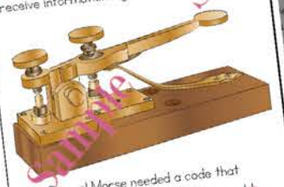
ENGAGING READING: 2 TYPES OF READING PASSAGES

Model Mr. Morse and His Code

In the early 1800s, Samuel Morse began his career as a painter. He soon became one of America's most important artists. In order to make a living, Samuel had to travel long distances to sell his paintings. In 1818, he married a woman named Lucretia. They had their first two children in the first few years of their marriage. In 1825, while away from home for work, Samuel received a letter from a messenger on horseback. He learned that his wife had given birth to their third child and was very ill. He returned home right away, but did not arrive in time to be with his wife before she died. The message had taken so long to give Samuel enough time to get home.

Samuel Morse was filled with sorrow at his wife's passing. He sailed to Europe to ease his sadness. He boarded a ship to return home in 1832. On his journey, he met the scientist Charles Thomas Jackson. Charles explained electromagnetism to Samuel. He showed him how electric pulses could be sent down a wire. Soon, the painter became an inventor. Samuel Morse came up with a way to send and receive information. He used a transmitter for sending electric pulses and a machine for receiving the messages. They were connected by a long electric wire. Electric pulses were sent down the wire.

Electric pulses were sent down the wire. Calling his invention a telegraph, Samuel Morse found a way to provide fast communication. No longer would an important message have to be sent on horseback, taking several days to reach its destination. As long as people were near a telegraph station, they could receive information right away.



Now Samuel Morse needed a code that senders and receivers of messages could both understand. He came up with a system of "dots" and "dashes" that stood for numbers and alphabet letters. After some changes, the system became the "International Morse Code." Rather than calling them "dots" and "dashes," the sounds are called "dits" and "dahs", which mimic the sounds that they make on the telegraph.

Morse code was widely used since its invention throughout the 1900s. When radio was invented, Morse code could be used on ships and airplanes. "Dits" and "dahs" could be transmitted much farther on radio than other sounds, so it was a better way to

© Jessica Fletcher | LitEffort | What I Have Learned

Model Mr. Morse and His Code

Now Samuel Morse needed a code that senders and receivers of messages could both understand. He came up with a system of "dots" and "dashes" that stood for numbers and alphabet letters. After some changes, the system became the "International Morse Code." Rather than calling them "dots" and "dashes," the sounds are called "dits" and "dahs", which mimic the sounds that they make on the telegraph.

Morse code was widely used since its invention throughout the 1900s. When radio was invented, Morse code could be used on ships and airplanes. "Dits" and "dahs" could be transmitted much farther on radio than other sounds, so it was a better way to communicate. In the 1930s, Morse code was used on every big ship and plane in the United States. Some operators sent messages using Morse code through telegraph wires and others used radio waves to send messages. Operators, like those on a ship at sea, used large lights to flash Morse code message to a passing ship. Today, there are no more major telegraph systems in use. Some ham radio operators use Morse code to communicate, but governments and businesses find it much faster, and more accurate to use satellite technology for communication than Morse code.

A	·—
B	—···
C	—·—·
D	—··
E	·
F	··—·
G	——·
H	····
I	··
J	·———
K	—·—
L	·—··
M	——
N	—·
O	———
P	·——·
Q	——·—
R	·—·
S	···
T	—
U	··—
V	···—
W	·——
X	—··—
Y	—·——
Z	——··

Model Mr. Morse and His Code

Materials

- Student sheets
- Assortment of conductors for creating the conductor in the c
  - wires from a set of Christmas lights (ends stripped of ins
  - wires with lights from a set of Christmas lights (ends str
    ½ inch)
  - wires with alligator clips
- Assortment of materials to be used as a switch:
  - paper clips
  - alligator clips
  - actual switch
- Assortment of materials to be used as the Morse c
  sound):
  - buzzer and/or bell that is operated electronicall
  - light bulb in a socket
  - wire with light from a set of Christmas light
    ½ inch)
- Power source:
  - Battery (C always works, but you could u
  - Optional: Battery holder
  - If you are not using a Battery holder
    battery to the wires

Model Mr. Morse and His Code

Name: _____

Activity Sheet #1

In this activity, you will model a Morse code telegraph system.

1. Consider what you know about circuits. Use the materials provided to you by your teacher to make a Morse code transmitter.
2. Each partner will try to send a message at least three words long.
3. The partner receiving the message will write down the message and check with the sender to see if it is correct.
4. After each partner has sent and received one message, share your telegraph system with the class. Your teacher will tell you how the sharing will take place.

Draw your Morse code transmitter system:

As you and your partner worked together to make a Morse code transmitter, did you make changes to the system? If so, explain your changes and why you made them.

What materials did you use to make your transmitter? Why did you choose these materials? Explain your answer.

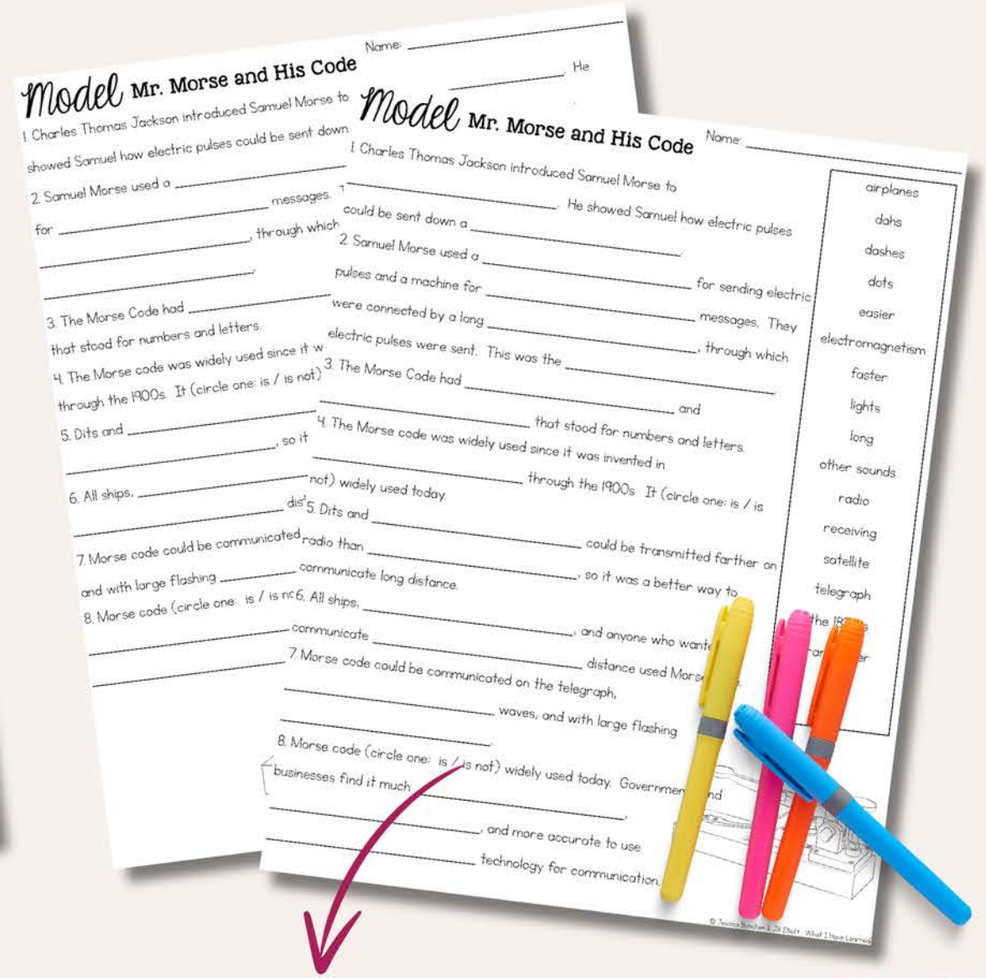


Sample

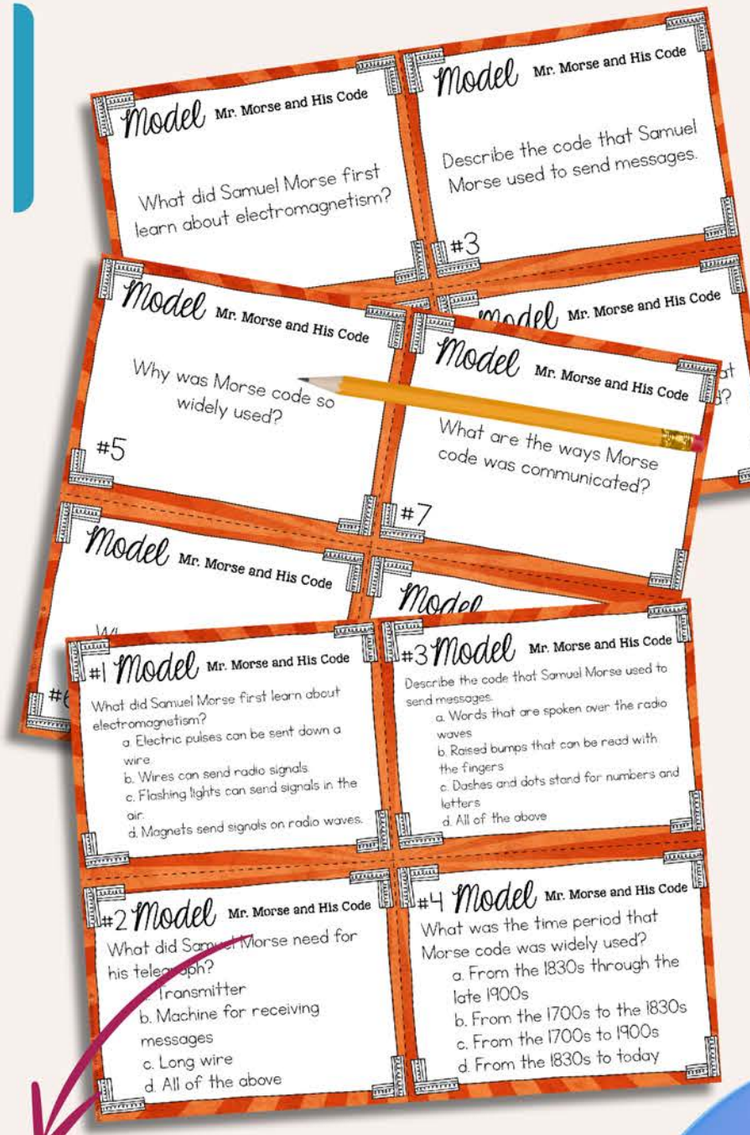
DIFFERENTIATED QUESTIONS



SHORT ANSWER



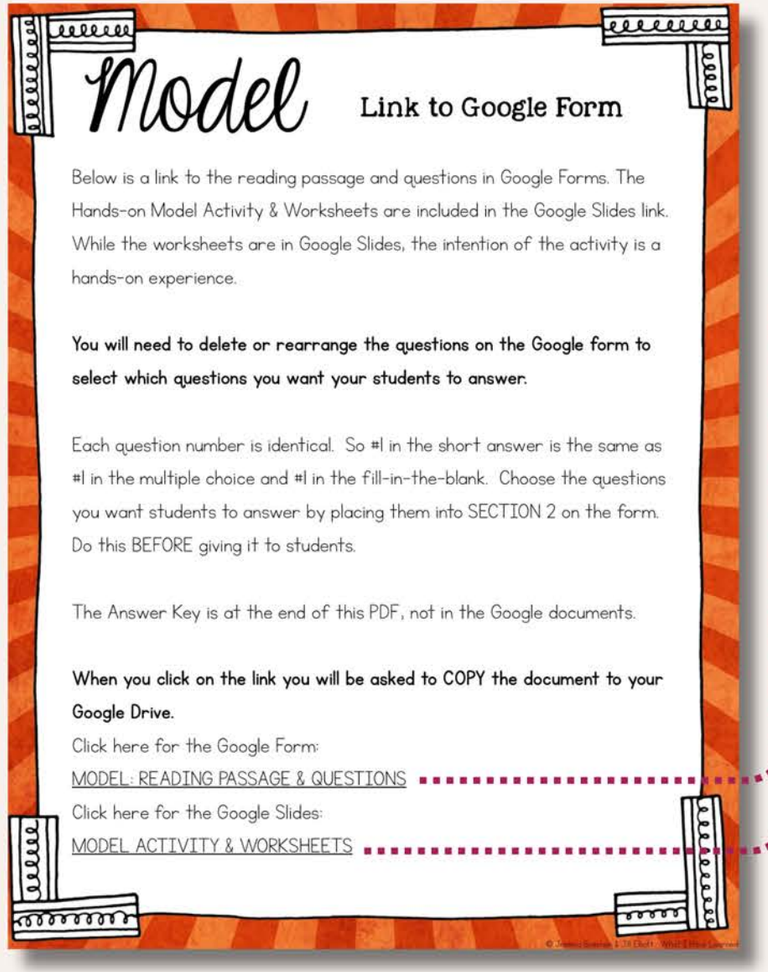
FILL-IN-THE BLANK

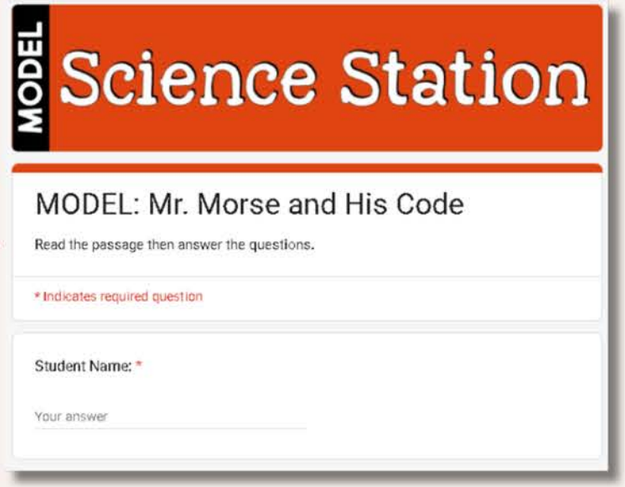


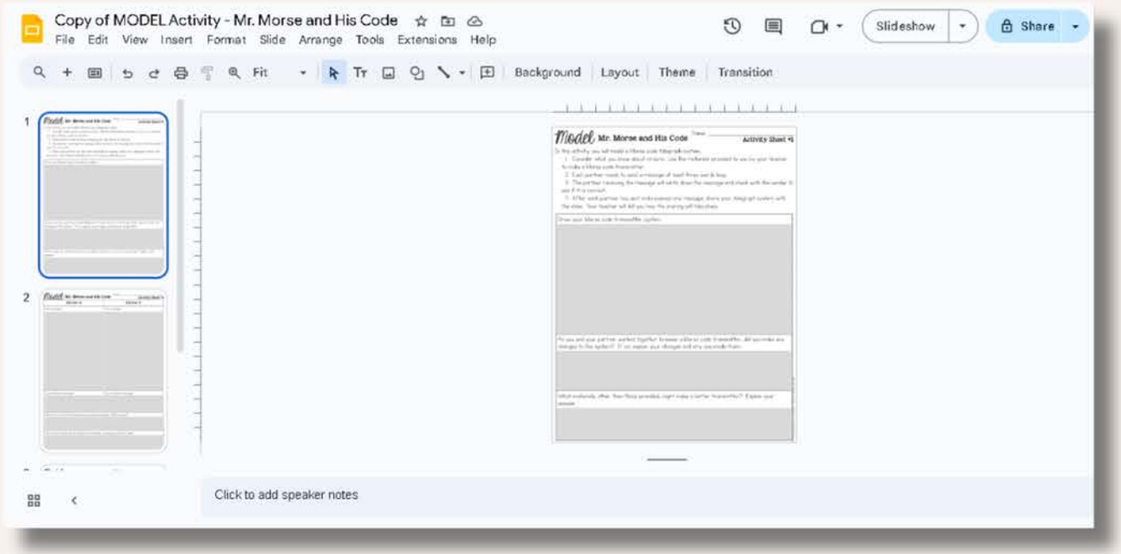
TASK CARDS:
SHORT ANSWER & MULTIPLE CHOICE


Model Mr. Morse and His Code
Teacher Instructions:
Review with students what is needed for a complete circuit: a power source (battery) and conductor (wires) in a closed loop. Groups will make a Morse code transmitter for this modeling station. They will use conductors, which are the wires carrying electricity. The wires lead from the battery to the switch. For a switch, students can touch together two paper clips or alligator clips to turn the switch "on." By moving the clips apart, the switch is "off." Wires then lead from the switch to the bell, buzzer, or light, and then back to the power source.
If you have sound-sensitive children in your class, specifically children with sensory processing, or autism spectrum differences, you may want to
over buzzers.
Students should have a variety of materials from which to make
transmitter. Groups may make several prototypes before settle
that they deem best, given the materials. This is to be encoura
ought to provide some guidance. Ask students why they cho
others, encourage them to consider the pros and cons of
something that looks interesting is actually less efficient
Encourage discussion, inquiry, and experimentation for
Part of the Engineering DCI for this standard is "
can be compared on the basis of how well each
success or how well each takes the constraint
standard, have students share their Morse
You may choose to do this as a whole-cla
have the groups make a video recordin
choose clusters of 3 or 4 groups to
other, as opposed to the whole cla
Model Mr. Morse and Hi
In the early 1800s, Samuel Morse began
painter. He soon became one of America's mos
artists. In order to make a living, Samuel had to tr
distances to sell his paintings. In 1818, he married
named Lucretia. They had their first two child
first five years of their marriage. In 1825, while
home for work, Samuel received a letter from a mess
on horseback. He learned that his wife had given b
their third child and was now very ill. He returned h
right away, but he did not arrive in time to be with his
before she died. The message had taken too long to give
Samuel enough time to get home.
Samuel Morse was filled with sorrow at his wife's passing. He sailed to Europe
to ease his sadness. He boarded a ship to returned home in 1832. On his journey,
met the scientist Charles Thomas Jackson. Charles explained electromagnetism to
Samuel. He showed him how electric pulses could be sent down a wire. Soon, the
painter became an inventor. Samuel Morse came up with a way to send and receive
information. He used a transmitter for sending electric pulses and a machine for
receiving the messages. They were connected by a long electric wire. Electric pulses
were sent down the wire. Calling his invention a telegraph, Samuel Morse found a
way to provide fast communication. No longer would an important message have to
be sent on horseback, taking several days
to reach its destination. As
long as people were near a
telegraph station, they could
receive information
right away.
Model Mr. Morse and His Code
Name:
1. Charles Thomas Jackson introduced Samuel Morse to electromagnetism. He showed Samuel how electric pulses could be sent down a wire.
2. Samuel Morse used a transmitter for receiving messages. They were connected by a long wire, through which electric pulses were sent. This was the telegraph.
3. The Morse Code had dashes / dits and dots / dahs that stood for numbers and letters.
4. The Morse code was widely used since it was invented in the 1830's th the 1900s. It (circle one: is / is not) widely used today.
5. dahs and other sounds could be transm
6. airplanes, so it was a better way to
long distance used Morse cod
7. de could be communicated on the telegraph, lights ge flashing
e (circle one: is / is not) widely used today.
easier
rellite foster
and wi
8. Mors
Model Mr. Morse and His Code
What did Samuel Morse first learn about electromagnetism?
#1
#5 Model Mr. Morse and His Code
Why was Morse code so widely used?
a. It was easier to listen to for long periods.
b. It could go farther on radio than other sounds.
c. Nothing else worked on radi
d. People enjoyed learning a p
code.

DIGITAL VERSIONS







DIGITAL VERSIONS

- ✔ Google Sheet with Activity & Directions
- ✔ Google Form with Reading & Questions

Answer keys provided

TEACHERS LOVE IT!

I used this to help prep for the ACAP! My students were prepared for the Morse Code questions because of this!

Teacher with a Corgi



This is a well-thought-out and planned unit. My class had a very good understanding of Context Clues when we were done.

Linda T.



My passion is making learning accessible to all students. I love scaffolding learning, breaking down the concepts and building them up so that students can see the connections. I love figuring out the small components that build up to the big ideas and helping students see it all.



teach MATH

teach SCIENCE

teach READING

teach WRITING

What I have LEARNED