



MINI ART VERSION

**DAKOTA STEAM
LEARNING
FACILITATOR GUIDE**

Mini Art STEAM Challenge

Facilitator Guide

Our Facilitator Guides give educators the clarity, confidence, and support needed to lead engaging STEAM experiences with purpose. Organized by topic, the guides provide a diverse range of meaningful content, with a strong emphasis on science and robust engineering and art strands. They also offer intentional opportunities to connect math, technology, and other STEAM elements in ways that help students see how learning works together across disciplines. This slide guide matches our products found on our website.



Use the resources embedded to watch a follow-along video version of this lesson.

SALT SNOWFLAKE ART

ART EXAMPLES

This slide highlights a few art examples and an inquiry question.

STEAM ART

What is unique about this style of art?



ART EXAMPLES

Take a few minutes to ask students the question on the slide. This will help students think about their own creation and how they might accomplish it.

What is unique about this style of art?

ART EXAMPLES

ART EXAMPLES

ART EXAMPLES



STEAM Slide Example



Science

Technology

Math

Creativity

Critical Thinking

Other

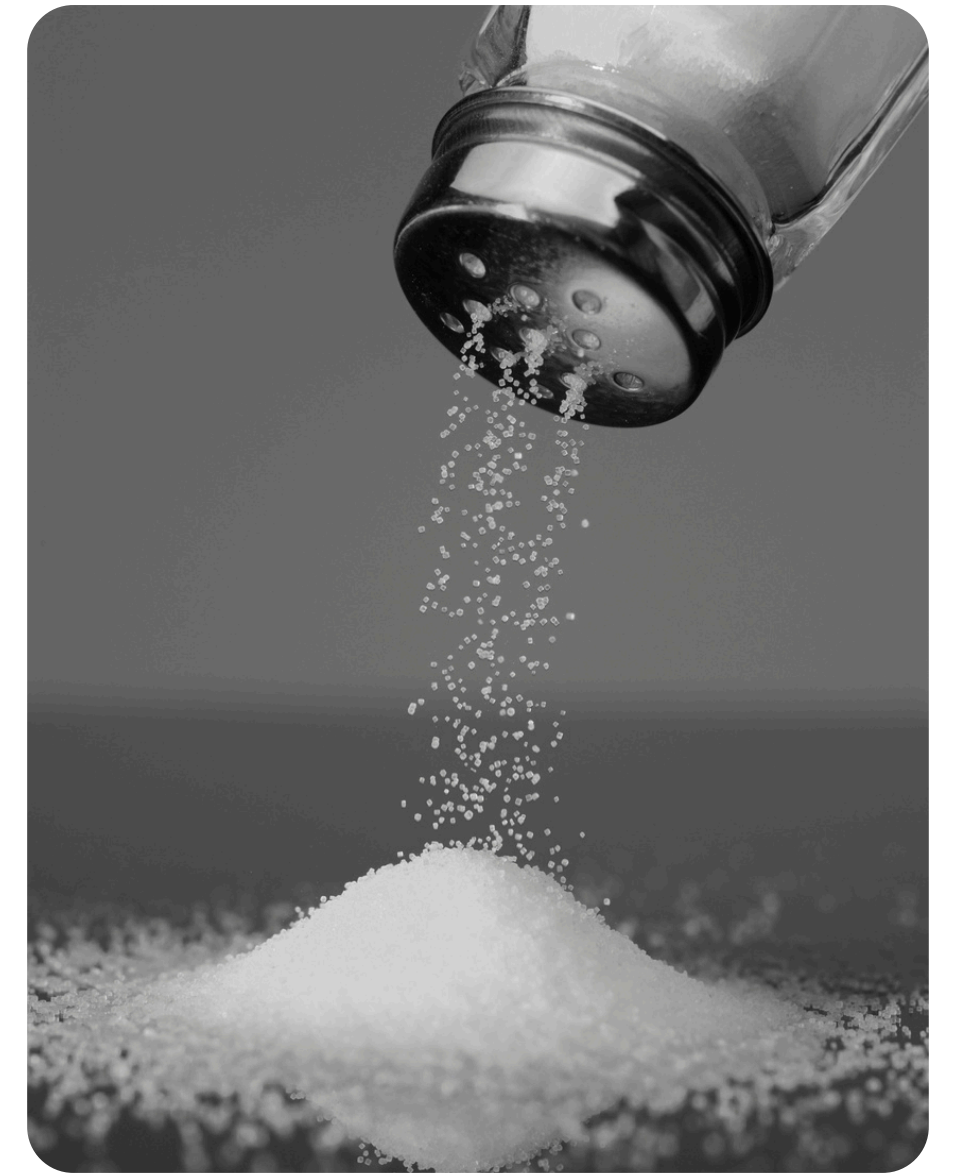
Bar above will highlight
the STEAM category.

Where's
the
STEAM?



- Information and images specific to this STEAM category are explained here on these slides.
- STEAM concepts connected to the subject of the art as well as the art process are both highlighted for students.

SCIENCE



SCIENCE

Where's the STEAM?



STEAM Slide Example

The human body must maintain a specific salt balance at all times to stay healthy. Therefore, when we eat salty foods, we often feel thirsty. Drinking water helps our body offset the water absorbed by the salt. When we don't eat enough salt, our body must retain water until more salt is consumed. Our kidneys have an important role in maintaining ideal salt levels within the body at all times.



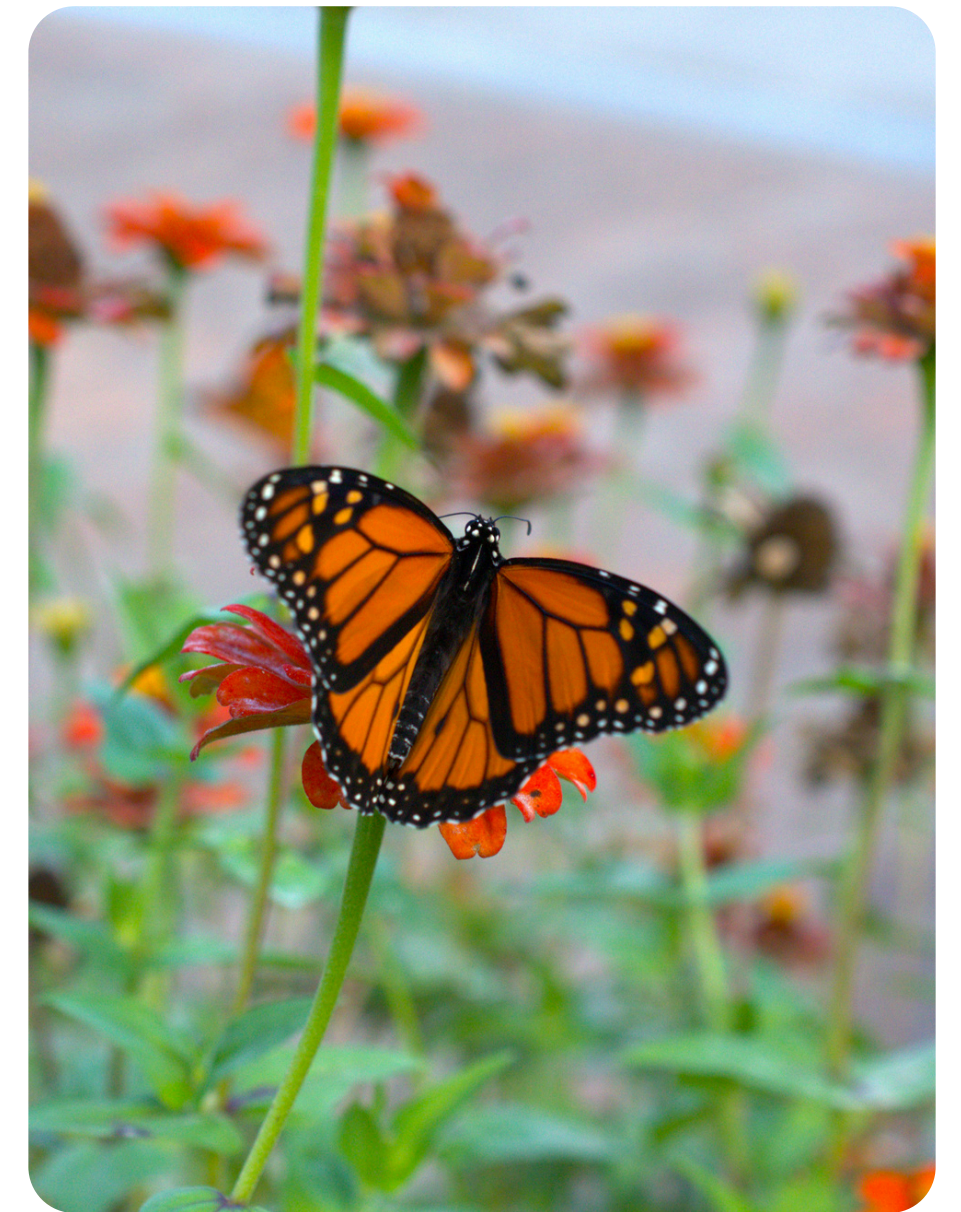
Where's the STEAM?



STEAM Slide Example

Symmetry happens when an object or shape can be divided into two or more parts that look the same, like mirror images. Many plants and animals grow in symmetrical ways because it helps them use energy efficiently, be stable, and move easily in their environments. For example, butterfly wings, flower petals, and starfish arms are all arranged symmetrically for balance and function. Symmetry also occurs at the molecular level, as in the hexagonal arrangement of water molecules that creates the six-sided shape of snowflakes. Nature uses symmetry because it helps living things survive, organize growth, and attract other organisms for pollination or protection.

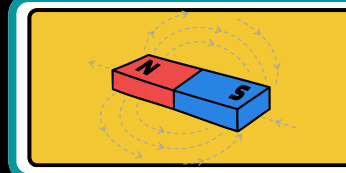
MATH



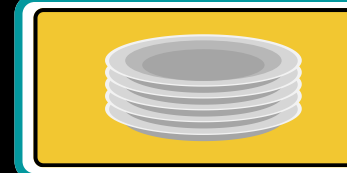
STEAM Materials

Material
list.

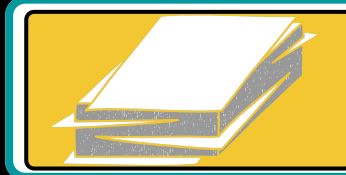
Art material
video:
This can
give insight
into how
materials
are
organized
for students.



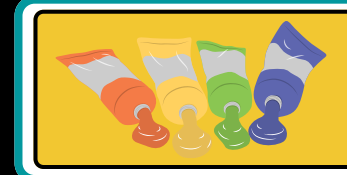
2 Magnets



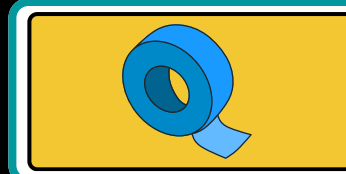
Plates



Canvas



Paint



Tape



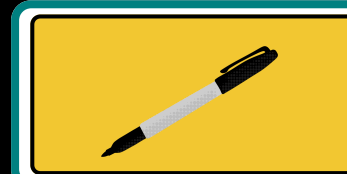
Tray



Pencil



Sponge Brush
(Optional)



Black Marker
(Optional)

Remember
Tools, Not Toys!
Be Safe, Have Fun!

Materials are identified for the students.
A detailed material list is provided for teachers in
the lesson plan.

STEP #1: Inspiration

STEP #2: Inquiry

STEP #3: Connect

STEP #4: Create

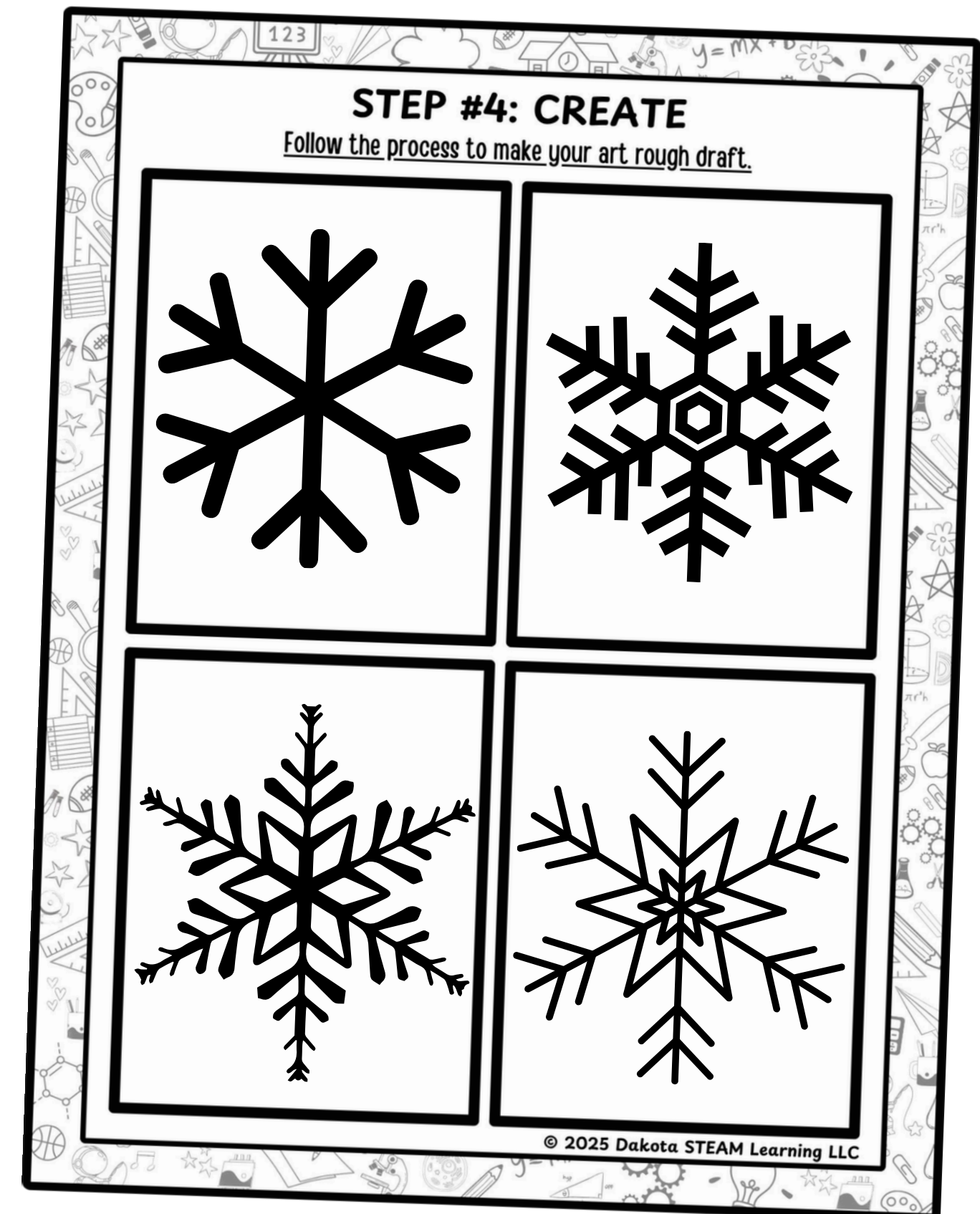
STEP #5: Finalize

STEP #6: Reflect

CREATE #1

Each "Create Step" slide may include:

- An indication to complete a STEAM journal draft.
- Detailed descriptions of the step.
- Pictures may be provided to guide the step's process.
- Videos may also be provided that help guide the step's process.



Create Step #1

Create Step #2

Create Step #3

Create Step #4

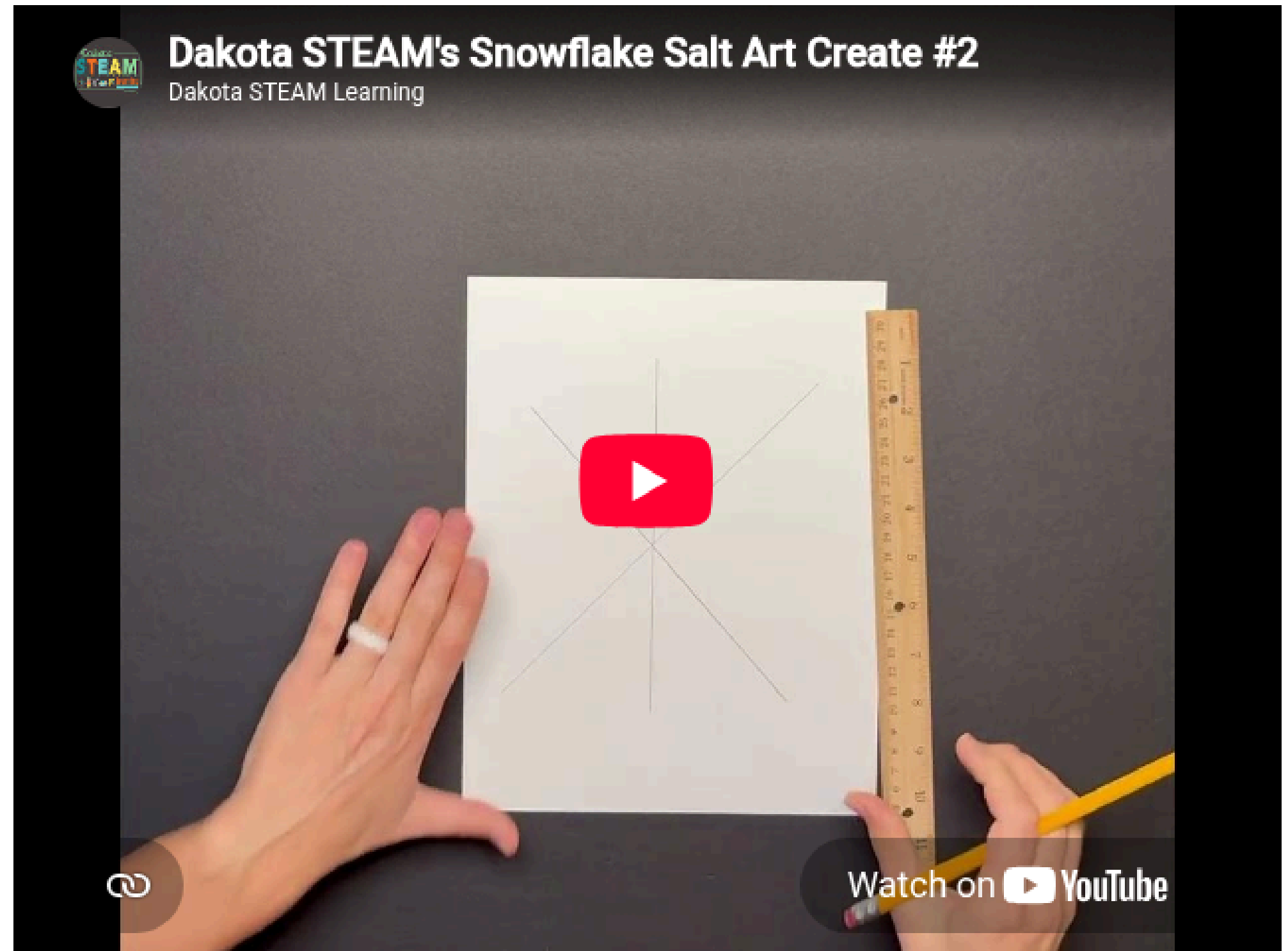
Create Step #5

Create Step #6

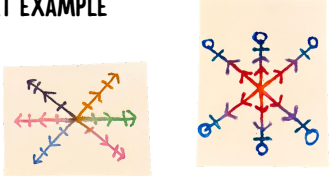
CREATE #2

- Using your STEAM journal design as inspiration, draw your snowflake with a pencil onto cardstock paper.
- Make the design large, leaving enough space between lines so you can easily trace them with glue.

STEAM Slide Example

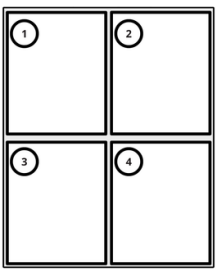


ART EXAMPLE

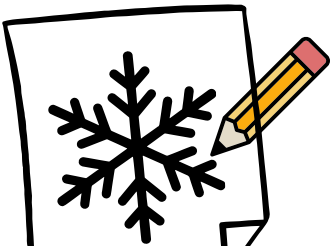


STEP 1

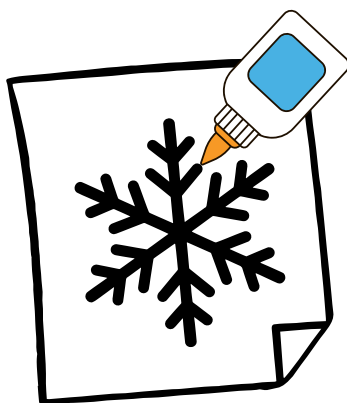
on
the
back



STEP 2



STEP 3



STEP 4



STEP 5



This slide provides a snapshot overview of all the necessary information. It is a good place to pause to review all the details of the challenge.

If you are presenting this challenge at an event, this is the perfect slide to display so all participants can review it before starting the challenge and refer back to it during their creation.

Project Name

STEAM question or creation inspiration will be here.

Follow the steps below.

Materials

- List of materials will be here.

Step
Overview

Follow the steps below to create your one of a kind painting!

Step 1

On the left is a visual of the step for a quick example or for participants who can't read yet!

Step 2

Step 3

Step 4

Art STEAM Challenge

Where's the
STEAM?

SCIENCE

This box will highlight "Where the STEAM" is and which STEAM Strand is present.

SCIENCE

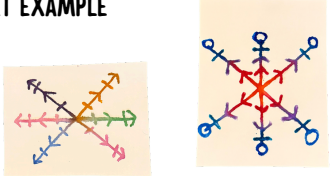
Desiccants are materials that absorb moisture from their surroundings, helping to keep things dry. They are commonly placed inside packages during shipping to prevent mold growth while being delivered or stored. They can also be used in food production. For example, salt is a commonly used desiccant because it attracts and binds water effectively, preserving food and preventing spoilage.



MATH

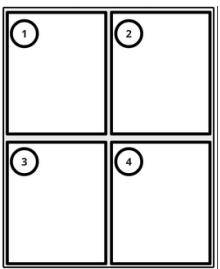
Symmetry happens when an object or shape can be divided into two or more parts that look the same, like mirror images. Many plants and animals grow in symmetrical ways because it helps them use energy efficiently, be stable, and move easily in their environments.



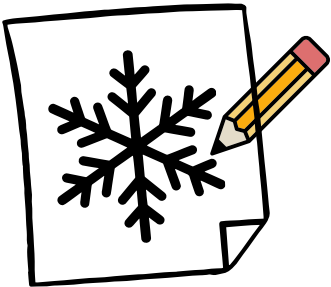


STEP 1

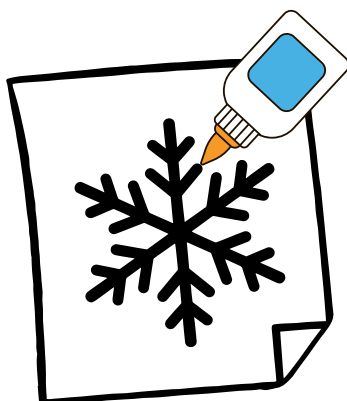
on
the
back



STEP 2



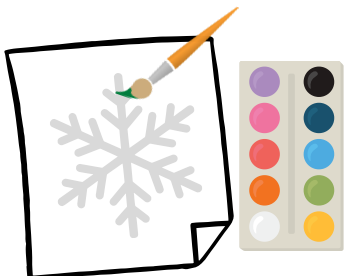
STEP 3



STEP 4



STEP 5



Snowflake Salt Art

STEAM Slide Example

Follow the steps below to complete your beautiful salt art snowflake painting.

Materials

- Watercolor Paints and Paintbrush
- Water Cup
- Salt
- Liquid Glue
- Pencil
- Ruler
- Cardstock Paper

Step Overview

Follow the steps below to create your one of a kind painting!

Step 1

- Rough draft: sketch out four different snowflake design options.
- Ensure that each snowflake has six arms and that all arms are symmetrical.
 - Choose your favorite design.

Step 2

- Use a pencil to draw your chosen design onto your cardstock paper.

Step 3

- Trace your pencil lines with liquid glue.
 - Move quickly, the glue can not dry before salt is added to the design.

Step 4

- Pour salt over all glued areas. A thick layer of salt must coat the entire snowflake design.
 - Dump all excess salt from the page.

Step 5

- Fill your paintbrush with water and saturated watercolor paint. Then, tap the brush on the salt. The color will absorb and spread due to the salt's desiccant nature.
 - Allow the paint to spread before adding more paint to the design to avoid flooding the paper with paint.
 - Only the salt should be colored, not the paper.

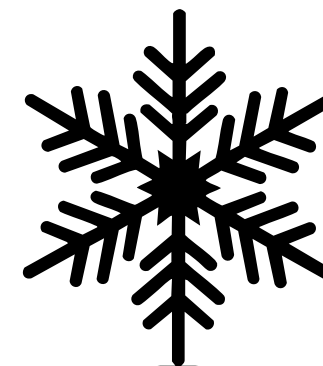
Step 6

- Allow the painting to fully dry.
- Then, check for excess salt that needs to be dumped from the page.

Art STEAM Challenge

Where's the STEAM?

SCIENCE



Snowflakes are tiny ice crystals that form when water vapor in the sky freezes around a small particle, such as a speck of dust. The structure of a snowflake begins with water molecules, each made of two hydrogen atoms and one oxygen atom, bonding together in a special pattern. These molecules form a lattice that creates a hexagonal (six-sided) shape due to the arrangement of their atoms.

Snowflake formation begins high in the clouds when water vapor cools and turns directly into ice, skipping the liquid stage. This process often starts when warm, moist air rises, cools, and forms clouds. If the air becomes cold enough, water vapor molecules stick to small dust particles, forming tiny ice crystals. As an ice crystal falls through the clouds, it passes through areas with different temperatures and humidity levels, causing more water vapor to freeze onto its surface. The way the crystal grows—sometimes quickly, sometimes slowly—depends on the changing conditions inside the cloud. The patterns and branches seen on a snowflake form as additional ice layers build up on the sides and points, making each snowflake unique.

SCIENCE

Desiccants are materials that absorb moisture from their surroundings, helping to keep things dry. They are commonly placed inside packages during shipping to prevent mold growth while being delivered or stored. They can also be used in food production. For example, salt is a commonly used desiccant because it attracts and binds water effectively, preserving food and preventing spoilage.



MATH

Symmetry happens when an object or shape can be divided into two or more parts that look the same, like mirror images. Many plants and animals grow in symmetrical ways because it helps them use energy efficiently, be stable, and move easily in their environments.



Thank you for creating
with us today!

This concludes today's
activity!

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Dakota

STEAM

