GRADE 5

SCIENCE • VISUAL ART

Art Hypothesis

Essential Question

What conditions support creativity and innovative thinking?

VOCABULARY

mediums
hypothesis
conclusion
substance

Materials List

- Materials as generated by students

Pacing 2-3 sessions

Assessment

SUMMATIVE	Students will complete a scientific investigation which culminates in a plan for making new art.

Elements of VISUAL ART

- Value
- Shape
- Texture

CONTENT Standard

NGSS 5-PS1-4

Conduct an investigation to **determine** whether the mixing of two or more substances results in new substances.

Additional Standards Addressed:
NGSS 5-PS1-3
CCSS.ELA-LITERACY.W.5.2
CCSS.ELA-LITERACY.W.5.10

ARTS Standard

VA:Cr1.1.5a

Combine ideas to **generate** an innovative idea for art-making.

Additional Standards Addressed:
VA:Cr2.1.5a

21st Century Skills

- Creative Thinking
- Initiative
- Collaboration
- Initiative

Lesson Objective

Students will use the scientific process to generate a new, innovative idea for making art.

Lesson Overview

In this lesson, students will use the scientific method to identify, plan and collect date for an investigation which will aim to identify a new medium for making art.

Artful Thinking Routine

Looking 10 x 2 routine

Have students look at Uomo in piedi by Dario Tironi and complete the following analysis.

- Look at the image quietly for at least 30 seconds. Let your eyes wander.
- List 10 words or phrases about any aspect of the picture.
- Repeat Steps 1 & 2: Look at the image again and try to add 10 more words or phrases to your list.

Your notes:

STEP 1 Introduction

Ask students to do a brain dump of art mediums. What substances can you use to make art?

Once students quickly go through the main items such as crayons, markers, pencils, push their thinking further. What if they didn't have those things? Think of when you have had to stay home for many days at a time and you were out of arts supplies. What could you do to create a picture? (***things like:*** *wet coffee grounds as watercolor, berries, food coloring… ideas are limitless!)*

STEP 2 Art Materials

Using a variety of different mediums and writing surfaces, experiment with students why some mediums work better on some surfaces than others. For example, use water-based markers on paper, and then use some on something slick, like plastic, that it will not adhere to.

With students, experiment with different things that you readily have on hand. **For example:** Does something colored in marker come off in water? Try this with a few different markers. Does a highlighter work on every kind of paper? The possibilities are endless, but the more time you spend on this, the easier it will be for your students to be innovative and creative in the main activity.

STEP 3 Scientific Process

Review the scientific process with students:

- Ask a question
- Construct a hypothesis
- Test your hypothesis
- Analyze your data
- Draw a conclusion
- Report your results and reflect on original hypothesis

Your notes:

Be sure students clearly understand all of the steps and the vocabulary associated with the scientific process.

Be sure to discuss the testing process in particular. Are there variables that need to be controlled? Are there special materials that might be needed? Will you need time in between tests, or to get full results?

STEP 4

Main Activity

Explain to students that they will be conducting a science experiment to try to find a new way to make art. There really are no limits to their thinking, but the only requirement is that with just 2-3 products, they will be able to create a piece of art in a new way. (Connect back to the work of Dario Tironi in the Artful Thinking Activity)

Students will work in partners, and create three different trials to create a new substance or art method. They will need to record their results along the way with as much detail as possible.

Finally, they will choose the method they felt was most successful to create a lasting piece of art.

Estimated Time: 2 sessions

Teacher to Teacher

Plan to take a break between classes after students have figured out a materials list. This will allow you and them to gather supplies. You may want to take a break of a couple days to allow sufficient time. Make sure students know which supplies you have access to, and which they will need to supply. Reinforce the idea that they should not be buying anything - only supplies they already have at home.

CLOSURE

Have an art walk with final products. As everyone is looking at different mediums, have students share their thoughts about how the art was created. Reveal art processes at the end, and allow students to share their biggest success and biggest fail from the scientific process.

GRADE 5

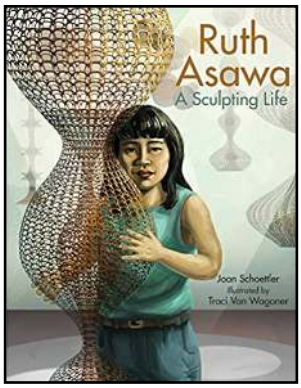
SCIENCE • VISUAL ART

Your other favorites:

Literature Connections

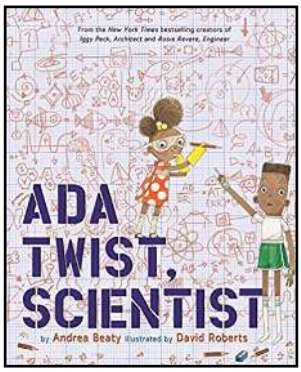
The Organic Artist for Kids: A DIY Guide to Making Your Own Eco-Friendly Art Supplies From Nature
Nick Neddo

Along with refining art skills, this book will spark the ideas of students to being creative and flexible, using all natural supplies like bark and charcoal to make art.



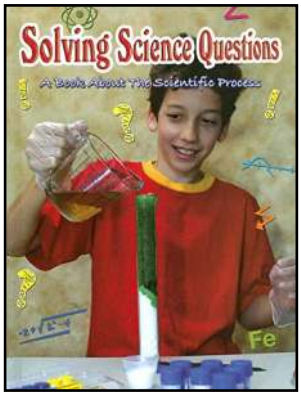
A Sculpting Life
Joan Schoettler

A gorgeous picture book that charts the life of sculptor Ruth Asawa. Known for using unconventional mediums, her story from living in internment camps to creating a school of the arts is inspiring and filled with learning and expression.



Ada Twist, Scientist
Andrea Beaty

A delightful bestseller about a young girl who is full of questions and wants to know "the why" of everything! Ada reminds us of the value of thinking through problems even when experiments don't go as planned!



Solving Science Questions: A Book About the Scientific Process
Rachel Chappell

A descriptive step by step look at the scientific process, using a fun and engaging question throughout the book: which brands of bubble bath produce the most bubbles?

Student
RESOURCE
SCIENCE • VISUAL ART

Art Hypothesis

Your Task:

Find a new and innovative way to create a piece of art! You will do this by conducting experiments to find a new substance or process to create a *lasting* piece of artwork. It should not be something that slips away.

The sky is the limit. You may use any materials you have access to. The only rule is that you must be combining different substances to see how they react, or if a new substance is formed.

Things to consider:

- color
- texture
- amounts of substances - will they be measured before being mixed?
- properties of the original substances and known reactions to other substances

Student RESOURCE
SCIENCE • VISUAL ART

Art Hypothesis

Name: _____

The Question: How will different materials react when mixed in an attempt to create a new art method?

Materials: What materials will you attempt to mix together?

Trial 1: _____

Trial 2: _____

Trial 3: _____

Hypothesis: What do you think will happen in each trial?

Trial 1: _____

Trial 2: _____

Trial 3: _____

Make a list of your needed materials, and who will be getting them:

Student RESOURCE
SCIENCE • VISUAL ART

Art Hypothesis

Name: _____

Trial 1: Explain in detail how you mix your materials. Remember to think about amounts of each material and the process in which you mix them:

Results:

Leave the results alone until tomorrow. Is there any change in the result and how the final mixture has settled?

Student RESOURCE
SCIENCE • VISUAL ART

Art Hypothesis

Name: _____

Trial 2: Explain in detail how you mix your materials. Remember to think about amounts of each material and the process in which you mix them:

Results:

Leave the results alone until tomorrow. Is there any change in the result and how the final mixture has settled?

Student RESOURCE
SCIENCE • VISUAL ART

Art Hypothesis

Name: _____

Trial 3: Explain in detail how you mix your materials. Remember to think about amounts of each material and the process in which you mix them:

Results:

Leave the results alone until tomorrow. Is there any change in the result and how the final mixture has settled?

Student **RESOURCE** SCIENCE • VISUAL ART

Art Hypothesis

Name: _____

Analyzing Data: Consider all of your results. What surprised you the most? Which trial seemed to work the best? Are there things you could do differently to get an even better result for art making purposes?

Now, using the best result, create a piece of new and original art!

TEACHER
ASSESSMENT
SCIENCE • VISUAL ART

Art Hypothesis

Student: _____

Total Score: ____ / 8

CRITERIA	Distinguished (4 Points)	Excelled (3 Points)	Adequate (2 Points)	Basic (1 Point)
The student is able to conduct an investigation to determine whether the mixing of two or more substances results in new substances.	☐ The student is able to independently and insightfully conduct a thorough investigation to determine whether the mixing of two or more substances results in new substances.	☐ The student is able to conduct an investigation to determine whether the mixing of two or more substances results in new substances.	☐ With support, the student is able to conduct an investigation to determine whether the mixing of two or more substances results in new substances. They may skip some steps.	☐ The student is unable to conduct an investigation to determine whether the mixing of two or more substances results in new substances.
The student is able to combine ideas to generate an innovative idea for art-making.	☐ The student is able to combine original ideas to generate an innovative idea for art-making inspired by their investigation.	☐ The student is able to combine ideas to generate an innovative idea for art-making.	☐ With support, the student is able to combine some ideas to generate an innovative idea for art-making.	☐ The student is unable to combine ideas to generate an innovative idea for art-making.

NOTES: