Lesson Title:	Observe like a scientist		
Grade: 5	-6 Week: 1st	Topic: observation	
of the object's sh	Lesson Objectives: Students will observe and explore how light hits an object impacts the length of the object's shadow. Students will explore drawing from observation as well as creating preliminary sketches for their final piece.		
concepts.) Students will hav what they have o	Art/Science Inclusion (brief description of how your lesson presents an integration of art and science concepts.) Students will have the opportunity to reflect, explore, collect and analyze data, and then discuss what they have observed. Students will use their observational science skills to look closely at the different patterns found and turn them into a new piece.		
 Art Open-Ended Question (what problem, task, or exploration will students be dealing with (should have multiple ways to complete it)) Students will explore sketching in the field and see how they can gain inspiration from the world around them for their art. How can we draw inspiration from the world around us? Art Education Standard (should include at least one, see https://www.arteducators.org/learn-tools/national-visual-arts-standards) Anchor Standard 1:Generate and conceptualize artistic ideas and work. Combine ideas to generate an innovative idea for art-making. 			
https://www.doe. -Observe natural observation. -Collect data and	 Science Education Standard (should include at least one, see https://www.doe.in.gov/standards/science-computer-science, NGSS also great) Observe natural phenomena and conduct multiple trials of qualitative and quantitative observation. Collect data and present it in a form of tables or drawing that can reveal the pattern and relationship between lengths and direction of shadows . 		
Timeline 10:00-10:15	Lesson Description Introduction and set up the basic rules for the classroom conduct	Modification for Inclement Weather	
10:15-11:10	Children will go outside and have them experiment with their shadows and observe different patterns of shadows. 1. Before you begin, have students point toward the direction of the sun. Then identify where their	In that case, we will do the activity using plastic cups, white paper/wax paper and light source inside the classroom to observe and explore shadows and its patterns with angle and length.	

	shadows are in relation to the sun.	
	Ask, "Are your shadows short or	
	tall?"	
2.	Have students move around and	
	observe their shadows as you ask	
	them the following questions:	
	• What makes your shadow	
	move?	
	• What happens to your	
	shadow when you stretch	
	your arms up high?	
	• What happens to your	
	shadow when you crouch	
	down low to the ground?	
	• Can you make your	
	shadow disappear	
	completely?	
2	Divide students into pairs and	
5.	give each pair a piece of chalk.	
	Have students stand on a hard	
	surface, such as the blacktop or	
	sidewalk. Prompt them to take	
	turns using the chalk to trace	
	around each other's shoes and	
	shadows. Encourage them to label	
	the outline with their name and	
	the time of the day.	
4.	Ask students to measure and	
	record the time, length, angle of	
	the shadows and find the	
	relationship between distance,	
	size and angle in formation of	
	shadow.	
5.	Ask them to predict what their	
	shadows will look like when they	
	return to the same spot later in the	
	day or different time. Have	
	students test their predictions a	
	few hours later by returning to the	
	same spot, using their shoe	
	outline as a guide. Instruct	
	students to take turns tracing their	
	new shadows.	
6.	Invite students to discuss the	
	differences in their shadows. Why	
	5	

	 do they think the shadows moved? 7. Explain to students that their shadows look different because the Earth is rotating. The sun is now in a different position relative to where they are standing. 	
11:15-11:45	 Ask students to consider what forms in nature do we commonly see in art? Ask students to think about shadows, patterns, and textures that we see in nature. Give students 15 minutes to sketch out different patterns they can find in nature. When finished, bring students inside and ask them to look back to their sketches and think of ways they can use the patterns they collected to create a drawing. Using crayons or markers, students will use reference from the observational sketches to create a nature pattern drawing. 	If weather is bad, we will look up pictures of trees and nature scenes to pull patterns from.
Art materials for	ase be detailed; include exact quantities) each student of white paper	Modification for Inclement Weather
- pencils, 2	1 1	
 erasers pencil sha pack of c 	arpeners	Science material (each students) -Paper cups (2 different size) -White paper/ Wax Paper

- pack of markers	-Light source /Flash lights
Science materials for each student	
- Meter scale	
- Protractor	
- Clipboard	
- Pencils	
- Papers	
- Sidewalk Chalk (different colors would be good)	

Week 2: Light and Shadow

Lesson Title:			
Grade: 5-6	Week: 2nd	Topic: Shadow and light	
opaque objects and unders	Lesson Objectives: Students will understand formation of shadow, identify transparent or opaque objects and understand the lunar/solar eclipse. Students will be able to describe and model how the relative sizes, distances, and positions of the Moon, the Sun, and Earth produce lunar and solar eclipses.		
Students will explore the c the lunar/solar eclipse.	reating from everyday materials in	connection to shadow, light, and	
Art/Science Inclusion (brief concepts.)	description of how your lesson presen	ts an integration of art and science	
Students will discuss shado	w and textures of the moon or sun wl ill be using these sculptures in order	1 0	
have multiple ways to compl	ith some everyday materials and be ask		
 Art Education Standard (should include at least one, see https://www.arteducators.org/learn-tools/national-visual-arts-standards) Creating- Anchor Standard 2: Organize and develop artistic ideas and work. Enduring Understanding: Artists and designers experiment with forms, structures, materials, concepts, media, and art-making approaches Demonstrate openness in trying new ideas, materials, methods, and approaches in making works of art and design. 			
https://www.doe.in.gov/star The orbits of Earth around	(should include at least one, see ndards/science-computer-science, NGS the sun and of the moon around Ea ht; daily and seasonal changes in th	arth cause observable patterns.	

· 1	s of the moon; and different positions of the	sun, moon at different times of the
day, month, and Timeline	Jean.	Modification for Inclement
10:00-10:15	 1. 1Students will be divided into two groups and will ask them to group the things based on criteria how much ligh pass through the objects. 2. Students will discuss the Opaque, 	Weather
	Transparent and Translucent objects and categorize the material.3. Students will be introduced with	
10:10-10:55	the solar system and the rotation of Sun,Earth and Moon.	
10.10-10.55	Introduction to artists who sculpt with	
	everyday materials 1. Students will be told that building	
	1. Students will be told that building off of last week, we will be	
	discussion the lunar and solar	
	eclipse and that to do so we will	
	be creating our own moons or	
	suns	
	2. Students will be given tin foil,	
	tape and paper and will be	
	instructed to create a from for	
	their moon/sun	
	3. Students will be asked to consider	
	the textures that might include in	
	their sculpture to represent the moon/sun	
	4. Tempera paint will be provided	
	for students to paint their	
	moon/sun and try to mimic the	
	textures, light, and shadows of	
	them	
10:55-11:10	4. After building the model of Earth, Sun and moon from the Art, the	
	student will explore solar eclipse	
	and lunar eclipse by using torch	
	light. tennis ball and ping pong	
	ball.	
	5. The students will explain the	
11:10-11:30	solar/lunar eclipse by explaining	
	through their model.	
	ease be detailed; include exact quantities)	Modification for Inclement
Art materials for	r each student	Weather

- 4 sheets of white paper	
- roll of tape	
- roll of tin foil	
- tempera paint	
- white, black, red, orange, yellow	
- paint brush, 1 thicker width and 1 thinner	
- paper plate for palette	
- plastic cup for water	
- string & 1 pair scissors for the room	
Science Material:	
Transparent item: Plastic wrap, plastic lead, laminating	
material (2 sets)	
Translucent: Bubble wrap, Tissue paper, waxed paper,	
white paper (2sets)	
Opaque material: Tin foil, cardboard, Styrofoam, Felt (2	
sets, not for each students)	
·····, ·······························	
Tennis ball (each student)	
Ping Pong Ball (each student)	
Torch light or Flashlight (each student)	
roten light of Flashinght (cach student)	
	<u> </u>

Week 3: Exploring Color in Nature

Lesson Title: The colors of the sky			Instructors: Conghui & Kodey
Grade: 5/6	Week:	3	Topic: Color in Nature
Lesson Objectives: Students will learn why	y the sky	chan	ges in color in the context of sunrise, sunsets,
_	these k	nowle	edge to find right places to take photos in right
time.			
Art/Science Inclusion (brief description of	howyo	ur loci	con procents an integration of art and science
			son presents an integration of art and science favorite weather pattern is and how it looks in
•			forms, or cloudy days. This will lead into the
	•		olors in the sky change and will be explained
this. Students will then be introduced to th			
atmosphere.			
	, task, or	explo	pration will students be dealing with (should
have multiple ways to complete it))			
What is your favorite kind of sky? What co	lors doe	s it ha	ive? What weather is happening?

Art Education Standard (should include at least one, see

https://www.arteducators.org/learn-tools/national-visual-arts-standards)

Creating- Organize and develop artistic ideas and work

People create and interact with objects, places, and design that define, shape, enhance, and empower their lives. Identify, describe, and visually document places and/or objects of personal significance.

Science Education Standard (should include at least one, see

https://www.doe.in.gov/standards/science-computer-science, NGSS also great) Develop a model using an example to describe the influence of the atmosphere on landforms and ecosystems through weather and climate.

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Timeline	Lesson Description	Modification for Inclement
10:00- 10:10	Students will be asked to consider what their	Weather
	favorite weather pattern is and how it looks	
	in the sky. They will consider sunrise, sunset,	
	night time, storms, or cloudy days.	
10:10- 10:40	1. Students will be given watercolor	
	and watercolor paper	
	2. Students will recreate their favorite	
	type of sky with watercolors	
	3. Students will be asked why they	
	think the colors in their sky are the	
	way they are. (Consider the season	
	weather and time of day)	
10:40-10:50	Group discussion of why the color of sky	
	changes.	
	1. Based on students' watercolors, list	
	all of the different colors students	
	have come up with.	
	2. Conclude the changes of the color of	
	sky: Red sunrise and sunset. Blue	
	sky, and ask why the color of sky	
	changes at different times of a day.	
	3. Finish this part with the question: Is	
	the position of the sun affecting the	
	color of the sky?	
10:50-11:20	Sky color experiment:	
10.00 11.20	1. Briefly introduce that we will do an	
	experiment to simulate the process	
	of sunlight going through the	
	atmosphere.	

11:10-11:30	 Lead students to think about the color of sunlight and what makes up the atmosphere. Then introduce the materials. Set up the equipment. Turn off the light in the classroom and let students observe in a turn and describe how the phenomenon relates to their watercolors. Discuss what happened in the sky when extreme weather happened. Introduce some artists (Jim Reed) that are interested in taking pictures of colorful skies or extreme weathers and show some of their works. Discuss how they find right places and times based on the science behind weather and 	
	climate to take these photos.	
Materials List (please be detailed; include exact quantities)		Modification for Inclement
Art Materials for e		Weather
- watercolo	r set	
 large thick brush and small detail brush 		
- cups for water		
- watercolor paper		
	ded glass container or cup	
 Milk (no le Flash light 	ess than the volume of the container)	
Ŭ		

Week 4: Building with Mother Nature

Lesson Title: Building in nature	Grade: 5/6
Week: 4 Topic: Building	n Nature
	I birds and various types of their nests. They will learn here and when to build nests. Students will apply this tural materials.
	bw your lesson presents an integration of art and science te and build with natural materials and will then be able reating their own bird's nest.
Art Open-Ended Question (what problem, ta have multiple ways to complete it)	sk, or exploration will students be dealing with (should

Students will be exploring natural materials and ways they can create art from and with nature. Are birds architects?

Art Education Standard (should include at least one, see https://www.arteducators.org/learn-tools/national-visual-arts-standards) Creating- Anchor Standard 1: Generate and conceptualize artistic ideas and work Combine concepts collaboratively to generate innovative ideas for creating art.

Science Education Standard (should include at least one, see

<u>https://www.doe.in.gov/standards/science-computer-science</u>, NGSS also great) Obtain and combine information about ways individual communities use science ideas to protect the earth resources and environments.

A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem.

I:		
Timeline	Lesson Description	Modification for Inclement
10:00-10:10	 Students will be asked to consider what kind of birds they know or have seen in Indiana. Students will describe when and where do they see them. Follow up questions could include how often do they see this kind of bird. Students will be led to discuss other characteristics of the birds like color and size. 	Weather
10:10-10:25	The discussion will be ended by a PPT of a list of common backyard birds in Indiana.	
10:25-10:40	 After going through all the birds, students will be asked to recall if they have seen some of the birds' nests, and discuss: What is the purpose of bird nests? Where do birds build their nests, and why? What is the structure of bird nests? What materials do birds use to build nests? 	
10:40-10:50		

10:50-11:00 11:00-11:30	Students will have a brief introduction to land artist and consider how they are similar to birds building in nature The class will go outside and collect natural materials After materials are collected students will work collaboratively to create their own bird's nest.	Students will be presented with small teacher made sample of a bird's nest using natural materials (I will bring these in) The class will be asked to think of different natural materials that could be used to make a nest. Students will create their own nest by drawing this on paper with colored pencils
Materials List (please be detailed; include exact quantities) Art materials - students will collect materials from outside		Modification for Inclement Weather art materials for each student - colored pencils - white drawing paper