Elements of the solar system and... 

**Revolution**

Through your choreography, your team needs to represent these aspects of the solar system and revolution. You will be asked to identify how your movements represent and/or relate to the solar system and revolution. Remember, your choreography is locomotor!

- **Revolution/around a body** - year and orbit
- Characteristics of planets - gravity
- Sun is the center - elliptical shape

*Both dance groups has a member from each planet research team. You will need to be sure that your dance has a movement for a characteristic of each planet.*

---

Elements of the solar system and... 

**Rotation**

Through your choreography, your team needs to represent these aspects of the solar system and rotation. You will be asked to identify how your movements represent and/or relate to the solar system and rotation. Remember, your choreography is Non-locomotor!

- **Rotation/spinning** - day and night
- Characteristics of planets - gravity
- Sun is the center - elliptical shape

*Both dance groups has a member from each planet research team. You will need to be sure that your dance has a movement for a characteristic of each planet.*
Exit Ticket
Rotation/Revolution and Dance

Circle which group you worked with today
Rotation
Revolution

Choose a movement that your team choreographed. Describe the movement
_________________________________________________________________________
_________________________________________________________________________

How did this movement represent an aspect of rotation/revolution or the solar system?
_________________________________________________________________________
_________________________________________________________________________

Name: _______________________
Date: _______________
Period: _____________
How did this movement represent an aspect of rotation/revolution or the solar system?
2.6.D.1.c. Identify and describe the general pattern of movement of all objects in our solar system

Name: ____________________________________________ Date: __________________ Period: __________.

1. What motion of Earth causes day and night?
   a. Rotation
   b. Revolution
   c. None of the above
   d. Both A and B

The diagram below represents the relationship among Earth, the sun, and the moon.

2. Which statement best describes the orbit of Earth around the sun?
   A. Earth’s orbit changes every year.
   B. Earth’s orbit takes about 365 days, or one year.
   C. Earth’s orbit takes about 30 days to complete.
   D. Earth’s orbit takes about 24 hours to complete.

3. Saturn has an orbit that goes around __________.
   A. the Earth
   B. the sun
   C. the moon
   D. Mercury

4. As a planet’s distance from the sun decreases, the period of revolution
   A. increases
   B. decreases
   C. stays the same
   D. fluctuates

5. What force is keeping the planets in a revolving motion?
   A. friction
   B. gravity
   C. electricity
   D. magnetism

6. Which statement best describes the motion of the planets in our solar system?
   A. The sun revolves around the planets.
   B. The planets rotate around the sun.
   C. The sun rotates around the planets.
   D. The planets revolve around the sun.
2.6.D.1.c. Identify and describe the general pattern of movement of all objects in our solar system

Name: ___________________________________________ Date: _______________ Period: ____________

7. Give a synonym for rotation_____________________. Give a synonym for revolution ___________________.
The Solar System (A)

Use the glossary on the back of this reading for the underlined words.

The words "solar system" refer to the Sun and all of the objects that travel around it. These objects include planets, natural **satellites** such as the Moon, the **asteroid** belt, **comets** and **meteoroids**. Our solar system has an **elliptical** shape. The Sun is the center of the solar system. It contains 99.8% of all of the **mass** in our solar system. Consequently, it exerts a tremendous **gravitational pull** on planets, satellites, asteroids, comets, and meteoroids. The planets and their satellites orbit the sun at different periods of **revolution**. A period of revolution is directly related to a planet’s distance from the sun. As distance decreases, the period of revolution decreases. Therefore, a year length is different for each planet. In addition, planets also **rotate** on their axis at different speeds. A planet's length of day and night is related to its speed of rotation. The slower a planet rotates, the longer its length of day. **Astronomers** believe the solar system formed 4.5 billion years ago. However, they differ in their beliefs about how the system formed. Some believe the whole solar system formed from a single flat cloud of gas, while others believe it formed when a huge object passed near the Sun, pulling a stream of gas off of the Sun. Astronomers theorize the planets then formed from this gas stream.

Astronomers are now finding new objects far, far from the Sun which they call dwarf planets. Pluto, which was once called a planet, is now called a dwarf planet.

**Answer the following:**

1. Our solar system is elliptical in shape. Draw an elliptic shape.

2. Some call the solar system the “sun system.” Do you agree? Why or why not?


4. Why do astronomers differ in their beliefs about the solar system? Do you have a theory on how the solar system formed?
SOLAR SYSTEM
The Sun and all of the planets, comets, etc. which revolve around it.

SATELLITE
An object that revolves around a larger primary body. Satellites may be naturally occurring, such as the Moon, or they may be man-made, such as the Hubble Space Telescope and the Compton Gamma-Ray Observatory.

ASTEROID
A rocky space object which can be from a few hundred feet to several hundred km wide. Most asteroids in our solar system orbit the Sun in a belt between Mars and Jupiter.

COMET
Frozen masses of gas and dust which have a definite orbit through the solar system.

METEOR
Meteoroids which burn up in the atmosphere of a space body, such as the Earth, prior to impacting on the surface.

METEORITE
Fragments of material that fall from space and impact on other larger space bodies.

METEOROID
Fragments of material which vaporize when they have a close encounter with a space body which has an atmosphere.

ELLIPtical
Shaped like an elongated closed curve.

MASS
The measure of the amount of matter in an object.

GRAVITY
The force of attraction between two objects which is influenced by the mass of the two objects and the distance between the two objects.

REVOLUTION
The traveling of a celestial body around the sun. A year is one complete revolution.

ROTATION
The spinning of a planet on an axis. Day and night lengths are determined by the speed of rotation.

ASTRONOMER
An expert in the study of the Sun, Moon, stars, planets, and other space bodies.
Elements of Dance – REVOLUTION

Use these elements in your choreography to demonstrate the concept of revolution, and to represent your specific solar system aspects.

**Motion:** locomotor (travels) slide-chasse, walk, crawl, run, leap

**Energy:** strong, sharp and free flow

**Space** around, forward, curved, big/little, high, low

**Time:** even beat/pattern, slow and quick

Your choreography must be at least 6 counts of 8!

---

Elements of Dance – ROTATION

Use these elements in your choreography to demonstrate the concept of rotation, and to represent your specific solar system aspects.

**Motion:** nonlocomotor (no traveling) sinking, bending, pushing, pulling, stretching

**Energy:** smooth, light, strong, heavy

**Space:** high, low, little, big, curved, twisted, up, down,

**Time:** slow and quick, even beat pattern

Your choreography must be at least 6 counts of 8!
<table>
<thead>
<tr>
<th>Routine</th>
<th>Steps/Procedure/Question</th>
<th>Use when you want students to:</th>
<th>Artwork Example</th>
<th>Reading/Writing Across the Curriculum</th>
<th>Thinking Map</th>
</tr>
</thead>
</table>
| **Looking/Listening 10x2** | 1. Look at a piece of art/listen to piece of music for 30 seconds  
2. List 10 words or phrases about any aspect of what you see or hear.  
3. Share words  
4. Repeat | - Make careful observations about an object, image or work of art.  
- Generate/brainstorm descriptive words or phrases for a pre-writing activity |  
*The Fair at Reynosa*  
Carmen Lomas Garza 1987 | **Vocabulary:** 1.D.3.a Use context to determine the meanings of words.  
1.D.3.b Use word structure to determine the meaning of words. | **Circle Map**  
- **Bubble Map** |
| **I See. I Think. I Wonder.** | 1. What do you see?  
2. What do you think about that?  
3. What makes you wonder? | - Make careful observations and thoughtful interpretations  
- Make inferences | ![Image](image1.png)  
*Foxes*  
Marc Franz 1939 | **Making Inferences:** 1.E.4.c Draw inferences and/or conclusions and make generalizations.  
**Question:** 1.E.4 Use strategies to demonstrate understanding of the text. (after reading) | **Tree Map** |
| **The Elaboration Game** | 1. *One* person identifies a specific section of the artwork and describes what he or she sees.  
2. *Another* person elaborates on the first person’s observations by adding more detail about the section.  
3. A third person elaborates further by adding yet more detail, and  
4. a fourth person adds yet more. | - Describe.  
- Elaborate.  
- Distinguish between what they see and what they interpret. |  
*Cakes*  
Wayne Thibeaud 1963 | **Vocabulary:** 1.D.3.a Use context to determine the meanings of words.  
1.D.3.b Use word structure to determine the meaning of words. | **Bubble Map**  
- **Flow Map** |
| **What Makes you Say That?** | 1. What’s going on (happening) in the picture?  
2. What makes you say that? | - Describe what they see or know and provide evidence and explanation (evidence based reasoning)  
- Provide text or graphic evidence for BCR thinking and writing. |  
*The Port of La Ciotat,*  
Georges Braque 1907 | **Making Inferences:** 1.E.4.c Draw inferences and/or conclusions and make generalizations.  
**Text Features:** 2.A.2.a Analyze print features that contribute to meaning.  
2.A.2.b Analyze graphic that contribute to meaning.  
2.A.2.d Analyze organizational aids that contribute to meaning. | **Tree Map** |
| **Colors, Shapes, Lines** | 1. What colors do you see? Describe them.  
2. What kinds of shapes do you see? Describe them.  
3. What kinds of lines do you see? Describe them. | - Observe details.  
- Generate/brainstorm descriptive words or phrases.  
- Prepare for analysis of Art |  
*Circular Forms* | **Vocabulary:** 1.D.3.a Use context to determine the meanings of words.  
1.D.3.b Use word structure to determine the meaning of words. | **Tree Map** |
<table>
<thead>
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<th>Routine</th>
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<tbody>
<tr>
<td>SYNTHESIS</td>
<td>Choose one of the 3 questions:&lt;br&gt;1. If this artwork is the beginning of a story, what might happen next? 2. If it this artwork is the middle of a story, what might have happened before? What might be about to happen? 3. If this artwork is the end of a story, what might the story be?</td>
<td>-Make observations and use their imagination to elaborate on and extend their ideas. -Look for connections, patterns, and meanings. -Develop writing or storytelling skills and sequencing.</td>
<td>Robert Delaunay 1930</td>
<td>Sequence, including order of events and flashback: 3.A.3.h Analyze the author’s approach to issues of time. Point of View: 3.A.3.i Analyze the point of view and its effect on meaning. Cause and Effect: 1.E.4.c Draw inferences and/or conclusions and make generalizations. Writing: 4.1.a Use a variety of self-selected prewriting strategies to generate, select, narrow, and develop ideas.</td>
<td>Flow Map</td>
</tr>
<tr>
<td>ANALYSIS</td>
<td>1. Make a claim about the artwork or topic (An explanation or interpretation of some aspect of the art-work or topic). 2. Identify/provide support for your claim (things you see, feel, and know that support your claim.) 3. Ask a question related to your claim (What’s left hanging? What isn’t explained? What new reasons does your claim raise?)</td>
<td>• Reason and provide evidence or support especially with topics in the curriculum are open to interpretation. • Practice BCR writing.</td>
<td>&quot;The Gulf Stream&quot;, Winslow Homer 1899</td>
<td>Main Idea and Argument: 1.E.4.a Identify and explain the main idea or argument. Making Inferences: 1.E.4.c Draw inferences and/or conclusions and make generalizations. Question: 1.E.4 Use strategies to demonstrate understanding of the text. (after reading)</td>
<td>Multi-Flow Map</td>
</tr>
<tr>
<td>SYNTHESIS</td>
<td>Brainstorm a list of at least 12 questions about the artwork or topic. Using starters: Why? What are the reasons? What if? What is the purpose of? How would it be different if? Suppose that What if we knew? What would change if?</td>
<td>-Make inferences. -Develop good questions. -Think deeply about a topic.</td>
<td>&quot;A Sunday on the Grande Jatte&quot; Georges-Pierre Seurat 1884</td>
<td>Making inferences: 1.E.4.c Draw inferences and/or conclusions and make generalizations. Question: 1.E.4 Use strategies to demonstrate understanding of the text. (after reading)</td>
<td>Tree Map</td>
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<tr>
<td>SYNTHESIS</td>
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<td>&quot;The Uprising&quot; Honore Daumier 1860</td>
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<td>Frame of Reference (Thinking Map depends on the question the students generate)</td>
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<td>Routine</td>
<td>Steps/Procedure/Question</td>
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<tr>
<td>Creative Comparisons</td>
<td>1. What do you see in the artwork? What do you know about the topic?</td>
<td>- Use metaphorical thinking to create comparisons between dissimilar things.</td>
<td>Madame Kisling</td>
<td>Vocabulary: 1.D.3.a Use context to determine the meanings of words. 1.D.3.b Use word structure to determine the meaning of words. Compare and Contrast: 2.3.a Analyze the organizational patterns of texts such as similarities/differences.</td>
<td>Double-Bubble Map</td>
</tr>
<tr>
<td>ANALYSIS</td>
<td>2. Choose a category (musical instruments, plants, video game, toy city, part of the body, etc.)</td>
<td>- Understand unfamiliar subjects by linking it to what they already know.</td>
<td>Amedeo Modigliani 1917</td>
<td></td>
<td>Bridge Map</td>
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<td></td>
<td>3. Imagine: If this topic/artwork was a kind of (provide category), what would it be?</td>
<td>- Explain three ways that it compares.</td>
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<td></td>
<td>4. Explain three ways that it compares.</td>
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<tr>
<td>Connect. Extend. Challenge.</td>
<td><strong>Connect:</strong> How is the artwork, the ideas, or information presented CONNECTED to what you already knew?</td>
<td><strong>Connect:</strong> How is the artwork, the ideas, or information presented CONNECTED to what you already knew?</td>
<td>The Equatorial Jungle Henri Rousseau 1909</td>
<td><strong>Cause and Effect:</strong> 1.E.4.c Draw inferences and/or conclusions and make generalizations. <strong>Point of View:</strong> 3.A.3.i Analyze the point of view and its effect on meaning. <strong>Visualize:</strong> 1.E.3.h Visualize what was read for deeper understanding.</td>
<td>Multi-Flow Map</td>
</tr>
<tr>
<td>APPLICATION SYNTHESIS</td>
<td><strong>Extend:</strong> What new ideas did you get that EXTENDED or pushed your thinking in new directions?</td>
<td><strong>Extend:</strong> What new ideas did you get that EXTENDED or pushed your thinking in new directions?</td>
<td></td>
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<td>Frame of Reference</td>
</tr>
<tr>
<td>Challenge: What is still CHALLENGING or confusing for you to get your mind around? What questions, wonderings or puzzles do you now have?</td>
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<tr>
<td>Perceive. Know. Care About.</td>
<td>Three guiding questions</td>
<td>- Make connections between new ideas and prior knowledge.</td>
<td>The Scream Edvard Munch, 1893</td>
<td><strong>Point of View:</strong> 3.A.3.i Analyze the point of view and its effect on meaning. <strong>Making Inferences:</strong> 1.E.4.c Draw inferences and/or conclusions and make generalizations. <strong>Making Predictions:</strong> 1.E.4.d Confirm, refute, or make predictions</td>
<td>Bubble Map</td>
</tr>
<tr>
<td>ANALYSIS EVALUATION</td>
<td>1. What can the person or thing perceive?</td>
<td>- Explore diverse perspectives and viewpoints.</td>
<td></td>
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<td>(use the Frame of Reference to identify the point of view)</td>
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<td></td>
<td>2. What might the person or thing know about or believe?</td>
<td>- Make inferences.</td>
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<td></td>
<td>3. What might the person or thing care about?</td>
<td>- Connect to abstract concepts, pictures, or events.</td>
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<tr>
<td>Think. Puzzle. Explore.</td>
<td>1. What do you think about this artwork or topic?</td>
<td>- Connect to prior knowledge.</td>
<td>Still Life Pablo Picasso 1918</td>
<td><strong>Cause and Effect:</strong> 1.E.4.c Draw inferences and/or conclusions and make generalizations. <strong>Making Inferences:</strong> 1.E.4.c Draw inferences and/or conclusions and make generalizations. <strong>Question:</strong> 1.E.4 Use strategies to demonstrate understanding of the text. (after reading)</td>
<td>Circle Map</td>
</tr>
<tr>
<td>APPLICATION ANALYSIS</td>
<td>2. What questions or puzzles do you have?</td>
<td>- Develop own questions of investigation.</td>
<td></td>
<td></td>
<td>(Thinking Map depends on the question the students generate)</td>
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<td>3. What does the topic or artwork make you want to explore?</td>
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<tr>
<td>Routine ARTFUL THINKING</td>
<td>Steps/Procedure/Question</td>
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<tr>
<td><strong>Headlines</strong></td>
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</table>
|                         | 1. If you were to write a headline for this topic or issue right now that captured the most important aspect that should be remembered, what would that headline be? | -Summarize lesson, unit.  
-Draw conclusions. | *The Third of May 1801*  
Francisco Goya  
1814 | **Making Inferences**: 1.E.4.c Draw inferences and/or conclusions and make generalizations.  
**Main Idea and Argument**: 1.E.4.a Identify and explain the main idea or argument.  
**Informational Text/Text Features**: 2.A.2.a Analyze print features that contribute to meaning.  
2.A.2.b Analyze graphic aids that contribute to meaning. (graphic aids such as charts)  
2.A.2.d Analyze organizational aids that contribute to meaning.  
**General Reading Process**: 1.E.4.e Summarize and paraphrase. | *Tree Map* |
|                         | 2. (Later) How has your headline changed based on today’s discussion? How does it differ from what you would have said yesterday? |                                |                |                                     |             |
| **Parts. Purposes. Complexities.** | Ask 3 questions:  
1) What are its parts? (What are the pieces or components?)  
2) What are its purposes? (What is it for, what does it do?)  
3) What are its complexities? (How is it complicated in its parts, purposes, the relationships between the two or other ways?) | -Identify components, purpose and relationships.  
-Seeing the layers and dimensions of things. | *Cattleya Orchid and Three Hummingbirds*  
Martin Johnson Meade  
1871 | **Informational Text/Text Features**: 2.A.2.a Analyze print features that contribute to meaning.  
2.A.2.b Analyze graphic aids that contribute to meaning. (graphic aids such as charts)  
2.A.2.d Analyze organizational aids that contribute to meaning. | *Brace Map* of *Form and Function series of Thinking Maps* (Brace Map, Bridge Map, Tree Map, Multi-Flow Map) |
WHAT MAKES YOU SAY THAT?

What’s going on (happening) in this picture?

What makes you say that? What evidence is there?

I SEE, I THINK, I WONDER!

An Artful Thinking Routine

SEE

What do you see?

THINK

What do you think about that?

WONDER

What does it make you wonder?
**CLAIM**
Make a claim about the artwork or the topic. 
Claim = an explanation or an interpretation of some aspect of the artwork

**SUPPORT**
Identify support for your claim 
Support = Things you see, feel and know that support your claim

**QUESTION**
Ask a question related to your claim. 
Question = What’s left hanging? What isn’t explained, What new reasons does your claim raise?
Directions:

1. Look at the image for 30 seconds. Let your eyes wander.
2. List 10 words/phrases about any aspect of the image.
3. Repeat steps 1 and 2: Look at the image again and try to list 10 more words and phrases.
### Beginning, Middle or End

**Title of the Art/Topic:** ____________________

**Name:** ____________________  **Period:** ____

<table>
<thead>
<tr>
<th><strong>Beginning</strong></th>
<th><strong>Middle</strong></th>
<th><strong>End</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>If this work is the BEGINNING of a story, what might the beginning of the story be? What might happen next?</td>
<td>If this work is the MIDDLE of a story, what might have happened before? What might be about to happen?</td>
<td>If this work is the END of a story, what might the story be?</td>
</tr>
</tbody>
</table>
**CONNECT**
How is the artwork, ideas, or information presented, CONNECTED to what you already knew?

**EXTEND**
What new ideas did you get that EXTENDED or pushed your thinking in new directions?

**CHALLENGE**
What is still CHALLENGING or confusing for you or to get your mind around? What questions, wonderings or puzzles do you now have?

---

**THINK / PUZZLE / EXPLORE**

<table>
<thead>
<tr>
<th>THINK</th>
<th>PUZZLE</th>
<th>EXPLORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>What do you think you know about this artwork or topic?</td>
<td>What questions or puzzles do you have?</td>
<td>What does the artwork or topic make you want to explore?</td>
</tr>
</tbody>
</table>
**CREATIVE COMPARISONS**  
Name: ____________________________  Per.: ___

**What do you SEE in the artwork?**

**What do you KNOW about the topic?**

---

**COMPARE**

Choose a category from the list below or identify your own category. Create a double bubble map to explain at least three ways that it compares.

| • Musical instruments/music   | If this topic/artwork was a kind of  |
| • Plants                     | __________ (category), what would it be? |
| • Toys                       |                                           |
| • Cities                     |                                           |
| • Parts of the body          |                                           |
| • Artwork/ Painting          |                                           |

---

OR
PERCIEVE, KNOW, CARE ABOUT
An Artful Thinking Routine

Artwork: __________________________ By: __________________________

PERCIEVE
What can the person or thing perceive? Step inside the role of the person or thing.

KNOW
What might the person or thing know about or believe?

CARE ABOUT
What might the person or thing care about?

Name: ___________________________________________ Period: ___________ Date: ___________

Headlines

Before Discussion:
If you were to write a headline for a newspaper for this topic or work of art (to capture its most important and memorable aspect), what would that headline be?

After Discussion:
How has your headline changed based on today's discussion? How does it differ from what you would have said yesterday?
Creative Questions

Why....??
What are the reasons....??
What if....??
What is the purpose of....??
How would it be different if....??
Suppose that....??
What if we knew....??
What would change.... if??

Directions: Use each of the above question starters to write 12 deep, interesting questions about the artwork. You will need to use some starters more than once!

<table>
<thead>
<tr>
<th>1.</th>
<th>7.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>8.</td>
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<td>3.</td>
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<td>4.</td>
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<td>5.</td>
<td>11.</td>
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<tr>
<td>6.</td>
<td>12.</td>
</tr>
</tbody>
</table>
The Elaboration Game

Directions: With your team mates, identify a specific area/section of the artwork to describe. Student #1 describes what he/she sees. Students #2-4 elaborate on the previous student’s observation by adding more details.

#1 ——— #2 ——— #3 ——— #4

Parts, Purposes, Complexities

Artwork/Image: ________________________________

Parts
What are its parts? (What are the pieces or components?)

Purposes
What are its purposes? (What is it for, what does it do?)

Complexities
What are its complexities? (How is it complicated in its parts, purposes, the relationships between the two other ways?)