

Welcome to Science!!!

May 16, 2012

B Day

Dance Rotation and Revolution



Homework : Planet Riddles Handout (due Friday)
Quiz on Friday!

Learning Goal: I will understand and demonstrate rotation and revolution by choreographing a dance.

Warm-Up:

Set Up Your Notes for Artful Thinking:
Beginning, Middle, or End?

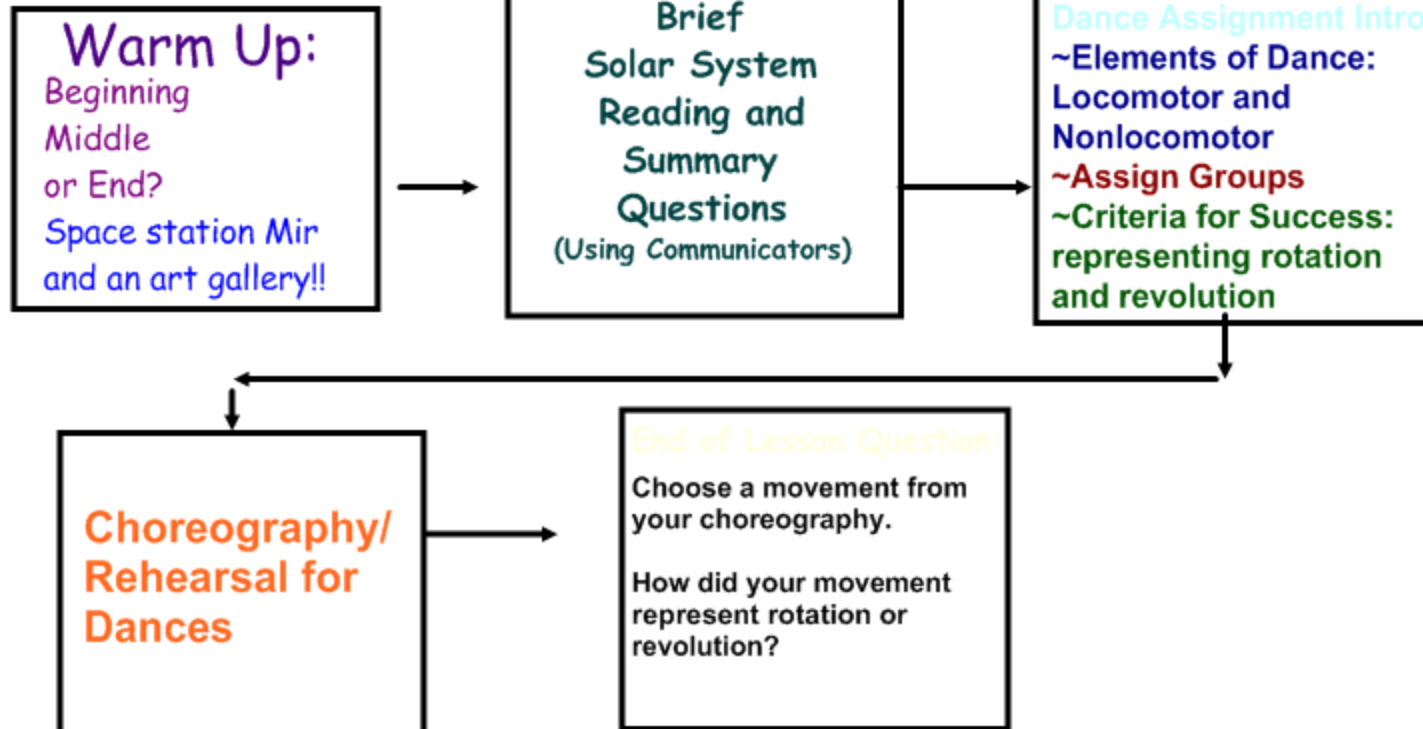
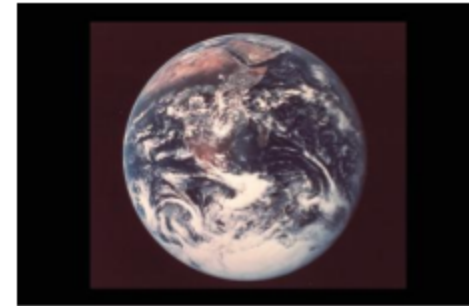


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Agenda 5/16/12 OUR PLACE IN SPACE



Warm Up: Beginning, Middle, or End

A routine for observing and imagining

Choose one of these questions:

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?

-- Use your imagination --

Werner Beyeler -
Switzerland
"Life Probes"



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About the artwork:

In 1995, the first formal art exhibition in space was launched. Called the **Ars Ad Astra project**, 20 works of art were selected by an international committee for exhibition on the **Mir Space Station**. The name of the exhibit was **"Art, Space and Humanity."**



This is the artwork we just viewed and discussed. :)

What can you recall about the Mir, and the first art gallery in space? Share your ideas!



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Solar System Reading

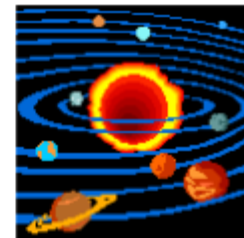
With your groups, read the short article on the solar system and answer the summary questions within the time given.

2.6.D.1.a. Recognize that Earth and its closest star, the sun, are part of a disk-shaped galaxy of stars and that our galaxy is one of billions of galaxies.

Name: _____

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.

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.

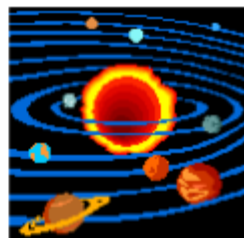
GRAVITY

2.6.D.1.a. Recognize that Earth and its closest star, the sun, are part of a disk-shape galaxy of stars and that our galaxy is one of billions of galaxies.

Name: _____

The Solar System (B)

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



What is the solar system? It is our Sun and everything that travels around it. Our solar system is elliptical in shape, which means it is shaped like an egg. The Sun is in the center of the solar system. Our solar system is always in motion. Eight known planets and their moons, along with comets, asteroids, and other space objects orbit the Sun. The Sun is the biggest object in our solar system. It contains more than 99% of the solar system's mass. Because the sun has more mass than anything else in the solar system, all the planets revolve around the sun. Each planet's complete revolution around the sun is equal to a year for that planet. Planets have different lengths of year depending on their distance from the sun. The further from the sun, the longer the revolution will take. The sun's gravity keeps our solar system in place. The planets also rotate or spin on their axis. Rotation is responsible for day and night on a planet. As a planet spins, it exposes the planet to the sun's energy and light. Planets rotate at different speeds. Earth rotates in 24 hours, but Jupiter completes a full rotation in just 10 hours.

Astronomers think the solar system is more than 4 billion years old.

SOLAR

Having to do with the Sun.

ELLIPTICAL

Shaped like an egg that has ends which are equal.

**COMET**

A big ball of dirty ice and snow in outer space

ASTEROID

A rocky space object that can be a few feet wide to several hundred miles wide.

Most asteroids in our solar system orbit in a belt between Mars and Jupiter.

ORBIT

The path followed by an object in space as it goes around another object; to travel around another object in a single path.

MASS

The amount of matter in an object.

REVOLVE

To travel around the sun. The planet follows an orbit as it travels. Revolution is used to describe this motion too. One complete revolution is equal to a year.

ROTATE

Your Assignment Today:

We will break into two groups, and choreograph a dance to represent rotation and revolution using locomotor and nonlocomotor dance!!

Elements of Dance is... B. (m) E. S. T.

The **BODY** ... is capable of **MOTION** ... which requires **ENERGY** ... Uses **SPACE** ... and takes **TIME!** (B.E.S.T.)

You will incorporate all of the elements of dance today, but your focus will be on the Element Category, **Motion.**



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All dance movements can be
labeled as *locomotor* or
nonlocomotor.

NONLOCOMOTOR-movements that do not
change location

LOCOMOTOR-movements
that travel



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Revolution

Rotation

Movement



Locomotor

Motions created moving across **SPACE**

Dancers using locomotor movements may...

walk, **run**, **skip**, **hop**, jump, **slide**, leap, or **gallop**.

Non-Locomotor

Motions made while staying in one **SPACE**

Dancers using non-locomotor movements may...

bend, **stretch**, **twist**, or **swing** their body.



SAILSS: Supporting Arts Integrated
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Dance and Movement

(BEST)

- When does movement become dance?

Movement becomes dance when the elements of dance: **body, energy, space, and time (BEST)** are intentionally incorporated.



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...So, let's do this!!!!



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Dance Groups!!

When I say, "go," You have 15 seconds to get to your group location!

Rotation

Jamie
Amir

Ben

Teariah

Mara

Gillian

Londell
Edward

David

Symmone

Nick

Revolution

Jaasiel
Gracie
Dilson

Will

Luc

Anija

Madi

Laura

Damarius

Alec

Yonathan



I will understand and demonstrate rotation and revolution by choreographing a dance.

Your group will combine both task cards in your choreography!

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 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
- Sun is the center
- gravity
- 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 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!



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**
- Characteristics of planets
- Sun is the center
- day and night
- gravity
- 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.



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End of Lesson Question:

Complete the exit ticket!

Choose a movement from your choreography.

How did your movement represent rotation or revolution?



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