There's No Business Like SNOW Business!

A two-way interactive videoconference investigating the artistic, mathematical and scientific properties of snow!

A Free two-way interactive television, distance learning program offered by TWICE for students in Grades 3 – 8

January 30-31 and February 2-3, 2017

Teacher Information Packet

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Program Description

Let it snow, let it snow, let it snow! Is it really true that no two snowflakes are alike? Investigating the intricacies of an individual flake and learning about such things as how American artists have depicted the beauty and wonder of snow and ice in paintings and photographs, to the mathematical and scientific composition of snowflakes can be fascinating.

Objectives

1. Appreciate the beauty of winter snow scenes in fine art.
2. Discover the physical composition and structure of ice crystals and snowflakes.
3. Explore the history and methodology for micro-photography.
4. Apply principles of geometry in observing and duplicating the structure and symmetry of snowflakes.

Program Option Details

During this **50 minute** interactive videoconference event, classrooms will be able to choose from the following options to learn about the business of snow business.

Instructors and students can choose from any or all of the following Snow Business Options:

1. **Share** what they learn about the composition and differences in snowflakes through research online, or other local and national resources. If a classroom has access to a meteorological expert in their community, perhaps this could add to the learning. Share what has been learned about snow with the partner school.
2. **Examine** the shapes of snowflakes as examined under microscopic conditions and share numbers of points, number angles between two similar kinds of snowflakes which will hopefully lead to showing minute details and differences in appearance and shape
3. **Compute** mathematically how many snowflakes it would take to make a 6" snow ball, an igloo, a snow fort, a ski hill, a snowman etc.
4. **Teach** a partner classroom how to make an artistic point snowflake to go with the unique kind of snow and what the conditions might need to be for the chosen artistic snowflake to be exist in a specific geographic area.
5. **Study and share visual artists** and musical artists have incorporated snow into various works of art and what the inspiration for the art or music was when the artist created the song or painting.

Program Format Options

1. Shortly after instructors receive notification from TWICE as to whom they have partnered with, instructors must communicate with each other via email and/or telephone to agree on the **Snow Business Option.** *(i.e. Share, Examine, Compute, Teach, Study and share visual art etc.)*

a. **Format Option 1: (Example below)**
   i. Classroom A could examine shapes of snowflakes to teach Classroom B how to make an artistic snowflake based on using verbal and written directions prepared ahead of time. The lesson could be interactive by giving students at remote sites opportunities to respond to questions, share experiences they have had with the "snow business" being discussed, or even what it's like to not have snow in their area where the live.
   ii. Classroom B teaches Classroom A how to make an artistic point snowflake based on unique kind of snow and what the conditions might need to be for that snowflake to fall. In the end, both sites could create a chain of snowflakes to decorate their classroom

b. **Format Option 2: (Example below)**
   i. Classroom A writes and creates patterns of snowflakes for Classroom B to create.
   ii. Classroom B writes and creates patterns of snowflakes for Classroom A to create.
   iii. Instructors send via email or US mail the instructions and pattern templates for students at each side
   iv. Connection Day: Students share "snow business" of snowflakes with each other as well as conditions when the designed snowflakes are apt to fall at a specific time of year, time of day or region.

c. **Format Option 3: (Example below)**
   i. Classroom A studies snow in art, media and music. A presentation about the artist and the use of snow in the art work is shared with a partnered classroom.
   ii. Classroom B studies snow in art, media and music. A presentation about the artist and the use of snow in the art work is shared with a partnered classroom.
   iii. Connection Day: Students present artistic side of "snow business" with each other.

d. **Additional Format Options for Classroom Collaboration Considerations:**
   - Classrooms view and discuss the ways in which snow and ice have been depicted in fine art.
   - Classrooms discover the physical composition and structure of ice crystals and snowflakes *(geometry and physical science connections)*
   - Classrooms explore the history and method for first snow flake photographs.
   - Classrooms view and discuss contemporary snow flake photographs.
   - Classrooms uncover the truth about the symmetry and exact sameness of all snowflakes.
   - Classrooms create intricate six-point snowflakes

2. **National Common Core Standards for Program Alignment**
   - **NA-VA5 8.4: Understanding the visual arts in relation to history and cultures**
     - Students analyze, describe and demonstrate how factors of time and place such as climate, resources, ideas and technology) influence visual characteristics that give meaning and value to a work of art. *(Fine Arts)*
   - **NM-PROP.CONN.Pk-12.3: Recognize and apply mathematics in contexts outside of mathematics.** *(Mathematics)*
   - NS5-8.2 PHYSICAL SCIENCE
     - Properties and changes of properties in matter