

SKyPAC's Gingerbread Contest STEAM Activities (Science, Technology, Engineering, Art, Math)

The following suggestions are based on the Kentucky Department of Education's Family Guide to the Kentucky Academic Standards.

Kindergarten

Math

Count out loud with your child, forward and backward, beginning with different numbers. Count items being used to decorate the gingerbread creation.

Give your child the decoration items and have them show you ways to make seven (for example: 5 and 2, 6 and 1, 3 and 4). Do this with numbers up to 10.

Use decoration items to add and subtract as a word problem.

Have your child find examples of squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres on your gingerbread creation.

Science

Talk about the weather in your gingerbread scene. Talk about the weather outside as you build your gingerbread creation and discuss how it differs day to day.

Visual Arts

Engage collaboratively in creative art-making of a gingerbread creation.

Explain the process of making your gingerbread creation while creating.

Explain what an art museum is and distinguish how an art museum is different from other buildings.

Describe what your gingerbread creation represents.

Interpret your gingerbread creation by identifying subject matter and describing relevant details.

Media Arts

Use ideas to form plans or models for your gingerbread creation.

Identify and demonstrate basic skills such as handling tools, making choices, to cooperate in creating your gingerbread creation.

Recognize and share how a variety of artworks create different experiences.

Use personal experiences and choices in making your gingerbread creation.



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First Grade

Math

Have your child solve addition and subtraction word problems by adding to and taking from using gingerbread decorations.

Have your child demonstrate numbers larger than 10 using gingerbread decorations (for example, 36 can be made with three bundles of 10 items and 6 items).

As you cook the gingerbread, have your child divide objects into halves and fourths.

Help your child create a chart using information collected from polling family and friends their favorite gingerbread decorations.

Partition rectangles into equal parts by creating window panes in windows.

Science

Experiment with how different gingerbread materials make different sounds.

Explore how the position and strength of lights impact the way shadows look on the gingerbread creation.

Visual Arts

Use observation and investigation in preparation for making a gingerbread creation.

Use art vocabulary to describe choices while creating your gingerbread creation.

Identify the roles and responsibilities of people who work in and visit museums and other art venues.

Compare images that represent the same subject as your gingerbread creation.

Interpret your gingerbread creation by categorizing subject matter and identifying the characteristics of form.

Media Arts

Use ideas to form plans and models for your gingerbread creation.

Describe and demonstrate various artistic skills and roles, such as technical steps, planning, and collaborating in building your gingerbread creation.

With guidance, identify how a variety of artworks create different experiences.

Use personal experiences, interests, and models in creating a gingerbread creation.



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Second Grade

Math

Ask your child which tools they would use to measure the length of your gingerbread creation versus the length of your house.

Measure your gingerbread creation using inches and centimeters using whole units.

When preparing your gingerbread for baking, have your child draw the different possibilities to divide the gingerbread into halves, thirds, and fourths.

When shopping for gingerbread ingredients with your child, have them practice counting change.

Have your child add and subtract gingerbread decorations.

Talk about odd and even numbers when counting gingerbread decorations.

Visual Arts

Make your gingerbread creation with various materials and tools to explore personal interests, questions, curiosity.

Discuss and reflect with peers about choices made in creating your gingerbread creation.

Analyze how art exhibited inside and outside of schools, like in museums and galleries, contributes to communities.

Categorize your gingerbread creation based on expressive properties.

Interpret your gingerbread creation by identifying the mood suggested and describing the relevant subject matter and characteristics of form.

Media Arts

Choose ideas to create plans and models for your gingerbread creation.

Enact roles to demonstrate basic ability in various artistic design, technical, and soft skills, such as tool use and collaboration in building your gingerbread creation.

Identify and describe how a variety of artworks create different experiences.

Use personal experiences, interests, information, and models in creating a gingerbread creation.



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Third Grade

Math

As you decorate your gingerbread house ask your child what two numbers would give you an answer between 30 and 40? Are there other numbers that would work?

When baking your gingerbread, explore kitchen fractions. Ask how many $\frac{1}{3}$ cups would we need to make one whole cup? How many $\frac{1}{4}$ cups are in $\frac{3}{4}$ cup?

Find the perimeter of the parts of your gingerbread creation.

Science

In between days of working on your gingerbread creation, take a walk or hike and observe animals and discuss how they work together to help all members survive.

On your walk or hike, discuss the weather. How is Kentucky's weather different in the winter than the summer? How is it different from other states like Alaska, Hawaii?

Visual Arts

Apply knowledge of available resources, tools, and technologies to investigate personal ideas through making your gingerbread creation.

Elaborate visual information by adding details in your gingerbread creation to enhance emerging meaning.

Identify and explain how and where different cultures record and illustrate stories and history of life through art.

Determine messages communicated by your gingerbread creation.

Interpret your gingerbread creation by analyzing use of media to create subject matter, characteristics of form, and mood.

Media Arts

Form, share, and test ideas, plans, and models to prepare for your gingerbread creation.

Exhibit developing ability in a variety of artistic, design, technical, and organizational roles, such as making compositional decisions, manipulating tools, and group planning in building your gingerbread creation.

Identify and describe how various forms, methods, and styles in artworks manage audience experience.

Use personal and external resources, such as interests, information, and models to create a gingerbread creation.



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Fourth Grade

Math

Compare fractional amounts in your gingerbread recipe.

While baking your gingerbread ask how many $\frac{1}{4}$ cups are needed to make $\frac{1}{2}$ cup? If we want to double our recipe, how many cups do we need now?

Encourage your child to continue to persevere to solve any problems that arise during gingerbread creating, even when it is difficult.

While measuring ingredients: We need $\frac{1}{2}$ cup. How many times do we need to fill the $\frac{1}{4}$ cup to make $\frac{1}{2}$ cup?

Measure the perimeter of your gingerbread creation.

Identify parallel and perpendicular lines in your gingerbread creation.

Identify different types of angles in your gingerbread creation. Does your creation have any right angles?

When decorating your gingerbread creation can you create shape patterns? For example, multiple triangles in a row?

Science

In between days working on your gingerbread creation, take a walk and observe how animals respond to their environment.

While on your walk discuss where energy comes from that helps to heat our home? Water, sun, coal, etc.

Visual Arts

Brainstorm multiple approaches to building a gingerbread creation.

Collaboratively set goals and create a gingerbread creation that is meaningful and has purpose to the maker.

When making the gingerbread creation, utilize and care for materials, tools, and equipment in a manner that prevents danger to oneself and others.

Document, describe, and represent regional constructed environments.

Analyze the various considerations for presenting and protecting the gingerbread creation in various locations, indoor or outdoor settings, in temporary or permanent forms, and in physical or digital formats.

Compare and contrast purposes of art museums, art galleries, and other venues, as well as the types of personal experiences they provide.



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Fifth Grade

Math

Use your gingerbread recipe to work on multiplying fractions. If you used $\frac{2}{3}$ of a $\frac{3}{4}$ cup of sugar, how much sugar did you use? How much is left?

Use the length, width, and depth of your gingerbread creation to determine how much icing is needed.

Have your child explain how to write recipe fractions in different ways.

Discuss with your child how much of each gingerbread ingredient would be needed if recipe doubled or cut in half?

Science

Discuss where the energy in our food comes from.

Visual Arts

Combine ideas to generate an innovative idea for a gingerbread creation.

Identify and demonstrate diverse methods of artistic investigation to choose an approach for beginning a gingerbread creation.

Demonstrate quality craftsmanship through care for a use of materials, tools, and equipment while building a gingerbread creation.

Identify, describe, and visually document places, and/or objects of personal significance.

Develop a logical argument for safe and effective use of materials and techniques for preparing and presenting your gingerbread creation.

Cite evidence about how an exhibition in a museum or other venue presents ideas and provides information about a specific concept or topic.



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Sixth Grade

Math

While shopping for gingerbread ingredients, talk with your child about finding the "better buy".

Discuss while shopping if a box of candies cost \$4, how much does each candy cost if there are 10 in a box?

Help your child find the area, surface area, and perimeter of your gingerbread creation or shapes within your gingerbread creation.

Discuss while shopping what is better, a positive balance on a credit card or a checking account. Why?

Science

While working on your gingerbread creation, discuss your community temperatures and have they changed or remained constant over time. Use a weather app to help you.

Visual Arts

Combine concepts collaboratively to generate innovative ideas for creating a gingerbread creation.

Formulate an artistic investigation of personally relevant content for creating a gingerbread creation.

Demonstrate openness in trying new ideas, materials, methods, and approaches in making a gingerbread creation.

Design or redesign objects, places, or systems that meet the identified needs of diverse users.

Reflect on whether personal artwork conveys the intended meaning and revise accordingly.

Assess, explain, and provide evidence of how museums or other venues reflect history and values of a community.



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Seventh Grade

Math

Before going shopping, let your child help you with your shopping budget.

If you happen to get some food to go after shopping for gingerbread ingredients, let your child find the amount of the tip you should give.

While shopping, discuss percent discounts. If you are getting a 25% discount, what percent of the original price are you paying?

Can you use 10% to estimate what 30% of a price is?

Find examples of complementary, supplementary, adjacent, and vertical angles in your gingerbread creation.

Science

While building your gingerbread creation did you have any problems? Discuss how you solved the problems. Use research to help you develop a solution.

Visual Arts

Apply methods to overcome creative blocks while planning a gingerbread creation.

Develop criteria to guide making a gingerbread creation meet an identified goal.

Demonstrate persistence in developing skills with various materials, methods, and approaches in creating a gingerbread creation.

Apply visual organizational strategies to design and produce a gingerbread creation that clearly communicates information or ideas.

Reflect on and explain important information about personal artwork in an artist statement or another format.

Compare and contrast viewing and experiencing collections and exhibitions in different venues.



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Eighth Grade

Math

While shopping for gingerbread ingredients, compare the costs involved in different brands. Discuss the amount of time spent grocery shopping using "function" language. Is the time spent shopping related to how many items are on the shopping list? How many friends you run into? Comparison shopping?

Use transformations when designing your gingerbread creation. For example, tiling on the roof.

Find and measure angles you have created in your gingerbread creation.

Find diagonals you have created in your gingerbread creation.

Discuss terms that mean something specialized in math compared to how we use them in family conversations, such as similar, translation, reflection, transformation, system, origin, and variable.

Science

As you plan and build your gingerbread creation, discuss with your child the problems you are solving. Is research helping you develop a solution?

Visual Arts

Document early stages of the creative process visually and/or verbally in creating a gingerbread creation.

Collaboratively shape an artistic investigation of an aspect of present-day life using a contemporary

Demonstrate willingness to experiment, innovate, and take risks to pursue ideas, forms, and meanings that emerge in the process of making a gingerbread creation.

Select, organize, and design images and words to make visually clear and compelling presentations.

Apply relevant criteria to examine, reflect on, and plan revisions for a work of art or design in progress.

Analyze why and how an exhibition or collection may influence ideas, beliefs, and experiences.



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High School

Math

Discuss with your child that math can be challenging. Encourage your child to keep trying. One way to be successful is to not fall behind.

Planning and building a gingerbread creation is a fun way to use math!

Find two shapes on your gingerbread creation that are congruent (identical). What makes them congruent?

What makes two shapes similar? Find two similar shapes on your gingerbread creation.

Find some parallel lines on your gingerbread creation. Is there a reason or benefit to having those items be parallel?

Can you start with any size circle and create another size circle by changing the scale? Can you do this with a gingerbread decoration?

Science

As you plan and build your gingerbread creation do you have any problems you need to solve? Discuss why did you chose the solution you did?

Visual Arts-Proficient

Use multiple approaches to begin a gingerbread creation.

Engage in making a gingerbread creation without having a preconceived plan.

Apply relevant criteria from traditional and contemporary cultural contexts to examine, reflect on, and plan revisions for your gingerbread creation.

Analyze and evaluate the reasons and ways an exhibition is presented.

Analyze and describe the impact that an exhibition or collection has on personal awareness of social, cultural, or political beliefs and understandings.

Analyze how one's understanding of the world is affected by experiencing visual imagery.

Visual Arts-Accomplished

Through experimentation, practice, and persistence, demonstrate acquisition of skills and knowledge in building a gingerbread creation.

Engage in constructive critique with peers, then reflect on, re-engage, revise, and refine your gingerbread creation in response to personal artistic vision.

Evaluate, select, and apply methods or processes appropriate to display artwork in a specific place.

Make, explain, and justify connections between artists or artwork and social, cultural, and political history.

Evaluate the effectiveness of an image or images to influence ideas, feelings, and behaviors of specific audiences.

Visual Arts-Advanced

Visualize and hypothesize to generate plans for ideas and directions for creating a gingerbread creation that can affect social change.

Experiment, plan, and make a gingerbread creation that explores a personally meaningful theme, idea, or concept.

Reflect on, re-engage, revise, and refine your gingerbread creation considering relevant traditional and contemporary criteria as well as personal artistic vision.

Investigate, compare, and contrast methods for preserving and protecting art.

Curate a collection of objects, artifacts, or artwork to impact the viewer's understanding of social, cultural, and/or political experiences.

Determine the commonalities within a group of artists or visual images attributed to a particular type of art, timeframe, or culture.

