

7th grade science project ideas with food

7th Grade Science Project Ideas with Food: A Delicious Exploration of Scientific Principles

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Introduction: The Allure of Edible Science

7th grade is a pivotal year in a student's scientific journey. This is when abstract concepts begin to take shape, and hands-on experimentation solidifies understanding. 7th grade science project ideas with food offer a unique opportunity to engage students in scientific inquiry using materials readily available in their kitchens. This exploration delves into the historical context of food-based science projects, their continued relevance in modern education, and provides a wealth of innovative project ideas suitable for 7th-grade students.

Historical Context: From Kitchen Chemistry to Classroom Experiments

The use of food in science education isn't a recent phenomenon. Historically, kitchen chemistry was a common form of informal science education, teaching basic principles of chemistry and biology through everyday cooking and preserving processes. From understanding yeast fermentation in bread-making to

observing the effects of heat on proteins during cooking, food has always provided a practical and engaging platform for scientific exploration. Early science textbooks often incorporated food-related experiments, reflecting the integral role of food in daily life and its potential as a teaching tool. However, the formal incorporation of food-based projects into structured 7th grade science curricula has evolved significantly, driven by the need for more engaging and accessible science education.

Current Relevance: Engaging the Next Generation of Scientists

The current relevance of 7th grade science project ideas with food stems from several factors. Firstly, it addresses the increasing need for hands-on, inquiry-based learning. Students are no longer passive recipients of information; they actively construct their understanding through experimentation. Food-based projects inherently lend themselves to this approach, allowing students to manipulate variables, observe results, and draw conclusions in a safe and relatable context. Secondly, it tackles the challenge of making science accessible and relevant to students' lives. By using familiar materials like fruits, vegetables, and grains, students connect scientific concepts to their everyday experiences, fostering a deeper understanding and appreciation for science. Thirdly, the use of food in science projects promotes interdisciplinary learning, connecting science to other subjects like math, language arts, and even art. Students can analyze data, write lab reports, and even create visually appealing presentations showcasing their findings.

7th Grade Science Project Ideas with Food: A Diverse Menu of Possibilities

The possibilities for 7th grade science project ideas with food are virtually limitless. The following are examples categorized by scientific discipline:

1. Biology:

The Science of Fermentation: Explore the process of fermentation using yeast and different types of sugar to investigate the factors influencing fermentation rate and gas production (e.g., temperature, sugar concentration). This project relates directly to the study of microorganisms and their metabolic processes.

Fruit and Vegetable Decomposition: Investigate the rate of decomposition of various fruits and vegetables under different conditions (e.g., temperature, humidity, presence of preservatives). This project explores the role of microorganisms in decomposition and the preservation of food.

The Effects of Acid on Food Preservation: Experiment with different acidic solutions (e.g., vinegar, lemon juice) to preserve fruits and vegetables. This helps to demonstrate the principles of food preservation and the role of pH in inhibiting microbial growth.

1. Chemistry:

The Chemistry of Cooking: Investigate how different cooking methods (e.g., boiling, frying, baking) affect the chemical composition and texture of food. This project can involve analyzing the Maillard reaction or the denaturation of proteins.

Testing the pH of Different Foods: Measure and compare the pH levels of various foods using pH indicators or electronic pH meters. This project explores the concept of pH and its role in food chemistry.

The Science of Candy Making: Experiment with different sugar concentrations and temperatures to create different types of candy (e.g., hard candy, caramels). This project demonstrates the principles of crystallization and the physical properties of sugar solutions.

1. Physics:

Density of Different Liquids: Compare the density of different liquids like milk, juice, and water by observing their layering in a graduated cylinder. This project introduces concepts of density and buoyancy.

Osmosis in Fruits and Vegetables: Observe the effects of osmosis by placing fruits and vegetables in different solutions (e.g., salt water, sugar water). This project demonstrates the principles of osmosis and diffusion across cell membranes.

1. Engineering:

Designing a Food Packaging System: Design and construct a packaging system for a specific food item that protects it from spoilage and damage during transport. This project explores the principles of engineering design and the challenges of food preservation and transportation.

Designing and Executing a Successful Project

Regardless of the chosen topic, a successful 7th grade science project using food requires careful planning and execution. Students should:

1. **Formulate a clear hypothesis:** This hypothesis should be testable and specific.
2. **Design a controlled experiment:** Identify independent and dependent variables, and control other variables to ensure accurate results.
3. **Collect and analyze data:** Record observations meticulously and use appropriate data analysis techniques to draw conclusions.

4. Present findings clearly: Create a compelling presentation, including a detailed lab report and visual aids.

Conclusion

7th grade science project ideas with food provide a dynamic and engaging approach to science education. By utilizing readily available materials and integrating scientific inquiry, these projects foster critical thinking, problem-solving skills, and a deeper understanding of fundamental scientific principles. The historical context and continued relevance of food-based science projects highlight their enduring value in shaping the next generation of scientists and informed citizens. The flexibility and diverse possibilities offered by this approach ensure that students can find a project that aligns with their interests and abilities, making science learning a delicious and rewarding experience.

FAQs:

1. Are all food-based science projects safe for 7th graders? Adult supervision is crucial. Projects should be carefully chosen to minimize safety risks.
2. What if I don't have access to specialized equipment? Many food-based projects require minimal equipment, often using household items.
3. How can I help my child choose a project? Discuss their interests and brainstorm together. Consider their strengths and weaknesses.
4. What is the role of the hypothesis in a science project? The hypothesis is a testable prediction based on prior knowledge.
5. How important is data analysis in a science project? Accurate data analysis is essential for drawing valid conclusions.
6. What makes a good science fair presentation? A clear presentation summarizes the project, methodology, and findings effectively.
7. Can I use food-based projects for other subjects like math? Absolutely. Data analysis and graphing require math skills.
8. Where can I find more ideas for 7th-grade science projects? Online resources, science textbooks, and educators are great sources.

9. What if my experiment doesn't work as expected? Negative results are still valuable. Analyze why it didn't work and learn from it.

Related Articles:

1. "The Science of Baking: A 7th Grade Experiment": This article provides detailed instructions for exploring the chemical reactions involved in baking bread.
2. "Exploring Fermentation with Yeast: A 7th Grade Science Project": This explores different factors influencing yeast fermentation, emphasizing data analysis and presentation.
3. "Investigating Food Preservation Techniques: A Hands-on Science Project": This article focuses on the science behind pickling and other food preservation methods.
4. "The Chemistry of Candy Making: A Sweet Science Experiment": This dives into the physical and chemical changes involved in candy making.
5. "Analyzing the pH of Fruits and Vegetables: A Simple Experiment": A straightforward guide to measuring pH using readily available materials.
6. "The Amazing World of Osmosis: A Food-Based Science Exploration": This article explores osmosis using fruits and vegetables as examples.
7. "Building a Sustainable Food Packaging System: An Engineering Challenge": This article focuses on the engineering aspects of designing efficient food packaging.
8. "The Science of Cooking: Investigating the Maillard Reaction": An in-depth look at the chemistry behind browning food.
9. "Designing a Food-Based Experiment for the Science Fair": This article offers guidance on planning and executing a successful science fair project related to food science.

7th grade science project ideas with food: What Flavor is Your Personality? Alan R. Hirsch, 2001 Taste-test your personality with this addictive book. Dr. Hirsch is a well-known neurologist and psychiatrist who specializes in the treatment of smell and taste loss. Now he turns his expertise to show how to tell what kind of person you are by the ice cream you eat and the snacks you prefer. Based on his own numerous scientific studies, the author reveals how food preferences provide

important clues about personality types and can even predict behavior. Serials to women and relationship magazines. Radio blitz.

7th grade science project ideas with food: The Complete Handbook of Science Fair Projects Julianne Blair Bochinski, 2003-11-21 Harried parents or teachers seeking ideas for science fair projects will find this resource a godsend. --Science Books & Films An excellent resource for students looking for ideas. --Booklist Useful information and hints on how to design, conduct, and present a science project. --Library Journal Sound advice on how to put together a first-rate project. --Alan Newman, American Chemical Society Want the inside tips for putting together a first-rate science fair project that will increase your understanding of the scientific method, help you to learn more about a fascinating science topic, and impress science fair judges? The Complete Handbook of Science Fair Projects, newly revised and updated, is the ultimate guide to every aspect of choosing, preparing, and presenting an outstanding science fair project. Special features of this unbeatable guide include: 50 award-winning projects from actual science fairs-including many new project ideas-along with an expanded list of 500 fascinating science fair topics suitable for grades 7 and up Straightforward, highly detailed guidelines on how to develop an outstanding project-from selecting a great topic and conducting your experiment to organizing data, giving oral and visual presentations, and much more The latest ISEF rules and guidelines Updated information on resources and state and regional science fair listings The Complete Handbook of Science Fair Projects gives you all the guidance you'll need to create a science fair project worthy of top honors.

7th grade science project ideas with food: Bartholomew and the Oobleck Dr. Seuss, 1949-10-12 Join Bartholomew Cubbins in Dr. Seuss's Caldecott Honor-winning picture book about a king's magical mishap! Bored with rain, sunshine, fog, and snow, King Derwin of Didd summons his royal magicians to create something new and exciting to fall from the sky. What he gets is a storm of sticky green goo called Oobleck—which soon wreaks havoc all over his kingdom! But with the assistance of the wise page boy Bartholomew, the king (along with young readers) learns that the simplest words can sometimes solve the stickiest problems.

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7th grade science project ideas with food: Janice VanCleave's Great Science Project Ideas from Real Kids Janice VanCleave, 2006-10-20 There's plenty for you to choose from in this collection of forty terrific science project ideas from real kids, chosen by well-known children's science writer Janice VanCleave. Developing your own science project requires planning, research, and lots of hard work. This book saves you time and effort by showing you how to develop your project from start to finish and offering useful design and presentation techniques. Projects are in an easy-to-follow format, use easy-to-find materials, and include dozens illustrations and diagrams that show you what kinds of charts and graphs to include in your science project and how to set up your project display. You'll also find clear scientific explanations, tips for developing your own unique science project, and 100 additional ideas for science projects in all science categories.

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2016-07-05 Kids take the reins in the kitchen with this hands-on book of edible science experiments! With revised and updated material, a brand-new look, and hours of innovative, educational experiments, this science classic by award-winning author Vicki Cobb will be devoured by a whole new generation of readers. Combine with such books as *Awesome Science Experiments for Kids* to help junior scientists continue their learning, whether at home or in a classroom. With contemporary information that reflects changes in the world of processing and preserving foods, this cookbook demonstrates the scientific principles that underpin the chemical reactions we witness every day—just by cooking. And once readers have tested their theories and completed their experiments, they can eat the results! From salad dressing to mayonnaise, celery to popcorn, and muffins to meringues, this book uses food to make science accessible to a range of tastes. Also included is essential information on eating healthfully, plus additional resources for further exploration.

7th grade science project ideas with food: TheDadLab Sergei Urban, 2019-05-14 The ultimate collection of DIY activities to do with your kids to teach STEM basics and beyond, from a wildly popular online dad. With more than 3 million fans, TheDadLab has become an online sensation, with weekly videos of fun and easy science experiments that parents can do with their kids. These simple projects use materials found around the house, making it easier than ever for busy moms and dads to not only spend more quality time with their children but also get them interested in science and technology. In this mind-blowing book, Sergei Urban takes the challenge off-screen with fifty step-by-step projects, including some that he has never shared online before. Each activity will go beyond the videos, featuring detailed explanations to simplify scientific concepts for parents and help answer the hows and whys of their curious children. Learn how to: explore new fun ways to paint; make slime with only two ingredients; defy gravity with a ping-pong ball; produce your own electricity, and more! With TheDadLab, parents everywhere will have an easy solution to the dreaded I'm bored complaint right at their fingertips!

7th grade science project ideas with food: Janice VanCleave's A+ Science Fair Projects Janice VanCleave, 2003-08-08 A fabulous collection of science projects, explorations, techniques, and ideas! Looking to wow the judges at the science fair this year? Everyone's favorite science teacher is here to help. Janice VanCleave's A+ Science Fair Projects has everything you need to put together a winning entry, with detailed advice on properly planning your project, from choosing a topic and collecting your facts to designing experiments and presenting your findings. Featuring all-new experiments as well as time-tested projects collected from Janice VanCleave's A+ series, this easy-to-follow guide gives you an informative introduction to the science fair process. You get thirty-five complete starter projects on various topics in astronomy, biology, chemistry, earth science, and physics, including explorations of: * The angular distance between celestial bodies * The breathing rate of goldfish * Interactions in an ecosystem * Nutrient differences in soils * Heat transfer in the atmosphere * Magnetism from electricity * And much more! You'll also find lots of helpful tips on how to develop your own ideas into unique projects. Janice VanCleave's A+ Science Fair Projects is the ideal guide for any middle or high school student who wants to develop a stellar science fair entry.

7th grade science project ideas with food: Candy Experiments Lorelee Leavitt, 2013-01-03 Candy is more than a sugary snack. With candy, you can become a scientific detective. You can test candy for secret ingredients, peel the skin off candy corn, or float an "m" from M&M's. You can spread candy dyes into rainbows, or pour rainbow layers of colored water. You'll learn how to turn candy into crystals, sink marshmallows, float taffy, or send soda spouting skyward. You can even make your own lightning. Candy Experiments teaches kids a new use for their candy. As children try eye-popping experiments, such as growing enormous gummy worms and turning cotton candy into slime, they'll also be learning science. Best of all, they'll willingly pour their candy down the drain. Candy Experiments contains 70 science experiments, 29 of which have never been previously published. Chapter themes include secret ingredients, blow it up, sink and float, squash it, and other fun experiments about color, density, and heat. The book is written for children between the ages of 7 and 10, though older and younger ages will enjoy it as well. Each experiment includes basic

explanations of the relevant science, such as how cotton candy sucks up water because of capillary action, how Pixy Stix cool water because of an endothermic reaction, and how gummy worms grow enormous because of the water-entangling properties.

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7th grade science project ideas with food: Save Me a Seat (Scholastic Gold) Sarah Weeks, Gita Varadarajan, 2016-05-10 A new friend could be sitting right next to you. *Save Me a Seat* joins the Scholastic Gold line, which features award-winning and beloved novels. Includes exclusive bonus content! Joe and Ravi might be from very different places, but they're both stuck in the same place: SCHOOL. Joe's lived in the same town all his life, and was doing just fine until his best friends moved away and left him on his own. Ravi's family just moved to America from India, and he's finding it pretty hard to figure out where he fits in. Joe and Ravi don't think they have anything in common -- but soon enough they have a common enemy (the biggest bully in their class) and a common mission: to take control of their lives over the course of a single crazy week.

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7th grade science project ideas with food: *101 Great Science Experiments* Neil Ardley, 2014-12-15 Forget about mad scientists and messy laboratories! This incredible, interactive guide for children showcases 101 absolutely awesome experiments you can do at home. Find out how to make a rainbow, build a buzzer, see sound, construct a circuit, bend light, play with shadows, measure the wind, weigh air, and create an underwater volcano. The astonishing variety of experiments are all very easy and entirely safe, with step-by-step text and everyday ingredients. Biology, chemistry, and physics are brought to life, showing budding young scientists that science is all around us all the time. As you have fun trying out experiments with friends and family, core scientific principles are presented in the most memorable way. With chapters covering important topics such as color, magnets, light, senses, electricity, and motion, the laws of science are introduced in crystal-clear text alongside specially commissioned full-color photography for children to understand. Follow in the footsteps of Albert Einstein, Marie Curie, and all the other great minds with *101 Great Science Experiments* and learn the secrets of science you'll never forget.

7th grade science project ideas with food: *Drawdown* Paul Hawken, 2017-04-18 • New York Times bestseller • The 100 most substantive solutions to reverse global warming, based on meticulous research by leading scientists and policymakers around the world "At this point in time,

the Drawdown book is exactly what is needed; a credible, conservative solution-by-solution narrative that we can do it. Reading it is an effective inoculation against the widespread perception of doom that humanity cannot and will not solve the climate crisis. Reported by-effects include increased determination and a sense of grounded hope.” —Per Espen Stoknes, Author, *What We Think About When We Try Not To Think About Global Warming* “There’s been no real way for ordinary people to get an understanding of what they can do and what impact it can have. There remains no single, comprehensive, reliable compendium of carbon-reduction solutions across sectors. At least until now. . . . The public is hungry for this kind of practical wisdom.” —David Roberts, *Vox* “This is the ideal environmental sciences textbook—only it is too interesting and inspiring to be called a textbook.” —Peter Kareiva, Director of the Institute of the Environment and Sustainability, UCLA In the face of widespread fear and apathy, an international coalition of researchers, professionals, and scientists have come together to offer a set of realistic and bold solutions to climate change. One hundred techniques and practices are described here—some are well known; some you may have never heard of. They range from clean energy to educating girls in lower-income countries to land use practices that pull carbon out of the air. The solutions exist, are economically viable, and communities throughout the world are currently enacting them with skill and determination. If deployed collectively on a global scale over the next thirty years, they represent a credible path forward, not just to slow the earth’s warming but to reach drawdown, that point in time when greenhouse gases in the atmosphere peak and begin to decline. These measures promise cascading benefits to human health, security, prosperity, and well-being—giving us every reason to see this planetary crisis as an opportunity to create a just and livable world.

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7th grade science project ideas with food: *Resources for Teaching Middle School Science* Smithsonian Institution, National Academy of Engineering, National Science Resources Center of the National Academy of Sciences, Institute of Medicine, 1998-04-30 With age-appropriate, inquiry-centered curriculum materials and sound teaching practices, middle school science can capture the interest and energy of adolescent students and expand their understanding of the world around them. *Resources for Teaching Middle School Science*, developed by the National Science Resources Center (NSRC), is a valuable tool for identifying and selecting effective science curriculum materials that will engage students in grades 6 through 8. The volume describes more than 400 curriculum titles that are aligned with the National Science Education Standards. This completely new guide follows on the success of *Resources for Teaching Elementary School Science*, the first in the NSRC series of annotated guides to hands-on, inquiry-centered curriculum materials and other resources for science teachers. The curriculum materials in the new guide are grouped in five chapters by scientific area—Physical Science, Life Science, Environmental Science, Earth and Space Science, and Multidisciplinary and Applied Science. They are also grouped by type—core materials, supplementary units, and science activity books. Each annotation of curriculum material includes a recommended grade level, a description of the activities involved and of what students can be expected to learn, a list of accompanying materials, a reading level, and ordering information. The curriculum materials included in this book were selected by panels of teachers and scientists using evaluation criteria developed for the guide. The criteria reflect and incorporate goals and principles of the National Science Education Standards. The annotations designate the specific content standards on which these curriculum pieces focus. In addition to the curriculum chapters, the guide contains six chapters of diverse resources that are directly relevant to middle school science. Among these is a chapter on educational software and multimedia programs, chapters on

books about science and teaching, directories and guides to science trade books, and periodicals for teachers and students. Another section features institutional resources. One chapter lists about 600 science centers, museums, and zoos where teachers can take middle school students for interactive science experiences. Another chapter describes nearly 140 professional associations and U.S. government agencies that offer resources and assistance. Authoritative, extensive, and thoroughly indexed—and the only guide of its kind—*Resources for Teaching Middle School Science* will be the most used book on the shelf for science teachers, school administrators, teacher trainers, science curriculum specialists, advocates of hands-on science teaching, and concerned parents.

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7th grade science project ideas with food: *The Complete Cookbook for Young Scientists* America's Test Kitchen Kids, 2021-09-28 America's Test Kitchen Kids brings delicious science to your kitchen! Over 75 kid-tested, kid-approved recipes and experiments teach young chefs about the fun and fascinating science of food. This is the fourth book in the New York Times bestselling cookbook series for Young Chefs. Why do some cheeses melt better than others? Why does popcorn pop? How does gelatin work? Answer these questions (and wow your friends and family!) by cooking the best-ever skillet pizza, easy chocolate popcorn, and galactic mirror cake... and more! Plus, fun science experiments to do in your home kitchen. With *The Complete Cookbook for Young Scientists*, emerging scientists and young chefs will feel confident in the kitchen, proud of their accomplishments, and learn the basics of food science along the way.

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7th grade science project ideas with food: *Naked Eggs and Flying Potatoes* Steve Spangler, 2010 Author, celebrity teacher and science guy Steve Spangler teaches you how to transform the ordinary into the amazing as you make everyday items ooze, bubble, fizz, pop. Make people wonder . . . How did you do that? From Flying Toilet Paper to Bin Smoke Rings, Erupting Soda to Exploding Sandwich Bags, the experiments in this book will spark imaginations and totally impress your friends. Learn how to astound kids and kids at heart with easy and inexpensive experiments like: Bubbling Lava Bottle; The Incredible Can Crusher; Eating Nails for Breakfast; The Amazing Folding Egg; Kitchen Chemistry Quicksand Goo; The Screaming Balloon; Burning Money Surprise; Flying Tea Bag Rocket. This is not your ordinary book of science experiments. This is a geek chic look at Spangler's latest collection of tricks and try-it-at-home activities that reveal the secrets of science in unexpected ways. Over 200 colour photographs accompany the step-by-step instructions, and simple explanations uncover the how-to and why for each activity. Make potatoes fly, bowling balls float, and soda explode on command. But don't try these experiments at home . . . try them at a friend's home!

7th grade science project ideas with food: *Developing Assessments for the Next Generation Science Standards* National Research Council, Division of Behavioral and Social Sciences and Education, Board on Science Education, Board on Testing and Assessment, Committee on

Developing Assessments of Science Proficiency in K-12, 2014-05-29 Assessments, understood as tools for tracking what and how well students have learned, play a critical role in the classroom. Developing Assessments for the Next Generation Science Standards develops an approach to science assessment to meet the vision of science education for the future as it has been elaborated in A Framework for K-12 Science Education (Framework) and Next Generation Science Standards (NGSS). These documents are brand new and the changes they call for are barely under way, but the new assessments will be needed as soon as states and districts begin the process of implementing the NGSS and changing their approach to science education. The new Framework and the NGSS are designed to guide educators in significantly altering the way K-12 science is taught. The Framework is aimed at making science education more closely resemble the way scientists actually work and think, and making instruction reflect research on learning that demonstrates the importance of building coherent understandings over time. It structures science education around three dimensions - the practices through which scientists and engineers do their work, the key crosscutting concepts that cut across disciplines, and the core ideas of the disciplines - and argues that they should be interwoven in every aspect of science education, building in sophistication as students progress through grades K-12. Developing Assessments for the Next Generation Science Standards recommends strategies for developing assessments that yield valid measures of student proficiency in science as described in the new Framework. This report reviews recent and current work in science assessment to determine which aspects of the Framework's vision can be assessed with available techniques and what additional research and development will be needed to support an assessment system that fully meets that vision. The report offers a systems approach to science assessment, in which a range of assessment strategies are designed to answer different kinds of questions with appropriate degrees of specificity and provide results that complement one another. Developing Assessments for the Next Generation Science Standards makes the case that a science assessment system that meets the Framework's vision should consist of assessments designed to support classroom instruction, assessments designed to monitor science learning on a broader scale, and indicators designed to track opportunity to learn. New standards for science education make clear that new modes of assessment designed to measure the integrated learning they promote are essential. The recommendations of this report will be key to making sure that the dramatic changes in curriculum and instruction signaled by Framework and the NGSS reduce inequities in science education and raise the level of science education for all students.

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7th grade science project ideas with food: **The Best Web Sites for Teachers** Vicki F. Sharp, Martin G. Levine, Richard M. Sharp, 2002

7th grade science project ideas with food: The Complete Guide to Service Learning Cathryn Berger Kaye, 2010-03-18 The Complete Guide to Service Learning is the go-to resource in the fast-growing field of service learning. It is an award-winning treasury of service activities, community service project ideas, quotes, reflections, and resources that can help teachers and youth workers engage young hearts and minds in reaching out and giving back. Author and internationally known service learning expert Cathryn Berger Kaye presents service learning—its importance, steps, essential elements, and challenges—within a curricular context and organized by theme. This second edition maintains the easy-to-use format of the original and is enhanced with updated

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