Parent Curriulum Guide

Rockdale Elementary School

6th Grade Science

Rockdale School District 84

This curriculum guide provides an overview of what your child will learn by the end of 7th grade in science. While this is an overview, your child's actual experience may differ from this guide depending on your child's individual needs. This guide focuses on the key skills your child will learn, which will build a strong foundation for success in other subjects and in future learning opportunities. If your child is meeting the expectations outlined in this curriculum guide, he or she will be well prepared for freshman science.

How Can I help?

You should use this guide as a resource to gain an understanding of the key skills that will be introduced and/or mastered by your child this year. This will help promote a better understanding, as well as allow for a strong relationship to be developed with your child's teacher. Regular ongoing dialogue about teaching and learning, beyond parent-teacher conferences, is expected and desired.

At home, you play an important role in setting and reinforcing high expectations for your child, while providing support for your child in meeting them. If your child needs additional help or wants to learn more about a topic, work with his or her teacher to identify opportunities for support or to find additional resources to supplement the learning. High expectations do not just surround the content being learned. Your conveyed expectations should also surround the development and use of the following soft skills: effective time-management, persistence and perseverance, self-confidence, growth mindset, productive use of constructive criticism, thinking critically, exhibiting independence, and being motivated.

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6th grade Science

Summary description with key emphasis/activities

Science at HBRMS follows the Next Generation Science Standards (NGSS). For more information regarding the NGSS please visit http://www.nextgenscience.org/search-standards-dci.

Unit One: Nature of Science (MS-ETS1-1-3)

- Scientific Inquiry
- Measurement
- Technology and Engineering

Unit Two: Chemistry (MS-PS1-1-6)

- Matter
- Periodic Table
- Chemical Interactions

Unit Three: Force and Motion (MS-PS2-1-5)

- Laws of Motion
- Nature of Forces

Unit Four Energy (MS-PS3-1-5)

- Define Energy
- Forms of Energy
- Changes in Energy

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A sample of skills to be gained:

• Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

• Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

• Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.

Make models to describe the atomic composition of simple molecules and extended structures.

• Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.

• Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.

• Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.

• Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.

• Design a project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.

• Apply Newton's Laws to design a solution to a problem involving the motion of two colliding objects.

• Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.

• Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.

• Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.

• Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.

• Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.

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- I can apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.

- Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.

- Construct, use and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.

Help your Child learn at home

List of primary sources for learning:

- Prentice Hall Science Explorer-Inside Earth, Astronomy, Atmosphere and Weather.

As you invest in your child in many different ways each day, take the following things into consideration as you invest in his or her learning. These strategies will have a direct impact on the learning of your child at home.

- Create a suitable place for learning at home to be completed.

- Create a daily routine and stick to it as much as possible.

- Work with your child on their homework on a regular basis. Have them start the homework on their own and then provide assistance when asked. When they ask for help, try utilizing the following prompts to help them think through their learning.

    - What do you remember from the learning activities in school?
    - Is there a place that you can reference that will help you?
    - What do you think would help?
    - Explain to me what you are struggling with.
    - What do you think you should do next?

It is important to help your child work through the answer, not just provide them with the answer. This process is extremely important in helping your child develop strategies that can be used whether he or she is with you or not.

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