

NUMBER:	701/702	TITLE:	SCIENCE 7
GRADE(S):	7	MEETS:	DAILY
LENGTH:	YEAR	CREDIT:	5 per semester

COURSE OUTCOMES:

1. Organizing information by classifying, sequencing, concept mapping, making and using tables and graphs.
2. Thinking critically by observing, inferring, comparing, contrasting, recognizing cause and effect.
3. Practicing scientific processes by forming a hypothesis, designing an experiment to test a hypothesis, separating and controlling variables, and interpreting data.
4. Representing and applying data by interpreting scientific graphics, making models, measuring and predicting.

Next Generation Science Standards of study in seventh grade science include:

*MS-LS1-6 Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.

*MS-LS3-1. Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.

*MS-ETS1-1. 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.

*MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

*MS-PS2-3. Ask questions about data to determine factors that affect the strength of electric & magnetic forces.

MS-PS2-5. 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.

*MS-PS3-2. 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.

*MS-PS3-5. 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.

*MS-ESS1-3. Analyze and interpret data to determine scale properties of objects in the solar system.

COURSE SUMMARY: Beckman Junior High Science goals and objectives strive to ensure students are scientifically-literate, global citizens who are prepared for college and /or career success. Students will engage with scientific phenomena and designing solutions to authentic problems. Students' performance expectations include the equally important interconnections of science and engineering practices, cross cutting concepts, and disciplinary core ideas rooted in Catholic teachings.

NUMBER:	711/712	TITLE:	EARTH & SPACE SCIENCE
GRADE(S):	8	MEETS:	DAILY
LENGTH:	YEAR	CREDIT:	5 per semester

COUSE OUTCOMES:

1. Organizing information by classifying, sequencing, concept mapping, making and using tables and graphs.
2. Thinking critically by observing, inferring, comparing, contrasting, recognizing cause and effect.
3. Practicing scientific processes by forming a hypothesis, designing an experiment to test a hypothesis, separating and controlling variables, and interpreting data.
4. Representing and applying data by interpreting scientific graphics, making models, measuring and predicting.

Next Generation Science Standards of study in eighth grade science include:

*MS-PS2-2. 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.

*MS-PS3-1. 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.

*MS-PS4-2. Create & use models to describe that waves are reflected, absorbed, or transmitted through materials.

*MS-LS2-5. Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

*MS-LS4-4. Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.

*MS-LS4-6. Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.

*MS-ESS2-5. Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.

*MS-ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

*MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics that can be combined into a new solution to better meet the criteria for success.

*MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

COURSE SUMMARY: Beckman Junior High Science objectives and goals strive to ensure students are scientifically-literate, global citizens who are prepared for college and /or career success. Students will engage with scientific phenomena and designing solutions to authentic problems. Students' performance expectations include the equally important interconnections of science and engineering practices, cross cutting concepts, and disciplinary core ideas rooted in Catholic teachings.