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The Moonbase Explorers Program is a highly engaging learning environment for students from kindergarten to second grade. The children perform hands-on experiments as well as learn various science skills and concepts.

Working as a member of the medical, geology, life support or engineering team, the student becomes an astronaut with the goal of investigating the possibilities of living and working on the moon. During this engaging experience, the student will practice 21st Century Learning Skills such as effective communication, problem solving, and critical thinking to help make the mission successful for all.

The Moonbase Explorers program is cross-curricular and incorporates educational concepts present in the following standards:

Common Core State Standards
Indiana Learning Standards
Illinois Learning Standards
Next Generation Science Standards*

*Proposed release of the final version of the Next Generation Science Standards is planned for February of 2013.

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KINDERGARTEN

FIRST GRADE

SECOND GRADE

KINDERGARTEN - INDIANA SCIENCE STANDARDS

I. SCIENCE – PROCESS STANDANDS

The Nature of Science:

- Use a scientific notebook to record predictions, questions and observations about data with pictures, numbers or in words.
- Conduct investigations that may happen over time as a class, in small groups, or independently.
- Generate questions and make observations about natural processes.
- Make predictions based on observations.
- Discuss observations with peers and be able to support your conclusion with evidence.
- Make and use simple equipment and tools to gather data and extend the senses.

The Design Process:

- Identify a need or problem to be solved.
- Document the design throughout the entire design process.
- Brainstorm potential solutions.
- Select a solution to the need or problem.
- Select the materials to develop a solution.
- Create the solution.
- Evaluate and test how well the solution meets the goal.
- Communicate the solution with drawings or prototypes.
- Communicate how to improve the solutions.

II. SCIENCE – CONTENT STANDANDS

Standard 1: Physical Science

Core Standard: Observe, manipulate, sort and generate questions about objects and their physical properties.

K.1.1. Use all senses as appropriate to observe, sort and describe object according to their composition and physical properties, such as size, color and shape. Explain these choices to others and generate questions about the objects.

K.1.2. Identify and explain possible uses for an object based on its properties and compare these uses with other students' ideas.

Standard 2: Earth and Space Science

Core Standard: Observe, record, and recognize patterns and generate questions about night and day and the seasons.

K.2.2. Describe and compare objects seen in the night and day sky.

Standard 3: Life Science

Core Standard: Observe living organisms, compare and contrast their characteristics, and ask questions about them.

K.3.1. Observe and draw physical features of common plants and animals.

K.3.2. Describe and compare living animals in terms of shape, texture of body covering, size, weight, color and the way they move.

K.3.3. Describe and compare living plants in terms of growth, parts, shape, size, color and texture.

KINDERGARTEN – INDIANA PHYSICAL EDUCATION STANDARDS

PE.K.1 2008 – Motor Skills and Movement Patterns: Students demonstrate competency in motor skills and movement patterns needed to perform a variety of physical activities.

Students observe, learn, practice, and develop basic (fundamental) locomotor (traveling actions), nonlocomotor (movement in place), and manipulative (object handling) movements. In kindergarten, a foundation is established to facilitate continued motor skill acquisition, which gives students the capacity for successful levels of performance as they develop.

PE.K.1.2 2008 – Perform basic nonlocomotor skills. Example: Demonstrate balance on a stable or unstable objects and/or demonstrate weight transfer/tumbling skills.

PE.K.1.3 2008 – Perform basic manipulative skills. Example: Demonstrate eye-hand and eye-foot coordination skills.

P.E.K.2 2008 – Movement Concepts: Students demonstrate an understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities.

Students learn to utilize cognitive information to understand motor skill acquisition. Knowledge of basic movement concepts (body, spatial, directional, and temporal awareness) enhances independent learning and effective participation in physical activity.

PE.K.2.1 2008 – Demonstrate variations in moving with spatial, directional, and temporal awareness. Example: Move in various directions, at various levels, in various patterns, and at various speeds in skill development activities.

PE.K.2.3 2008 - Identify and demonstrate basic principles for learning basic movement skills. Example: Verbally identify and practice the basic principles for balance, basic footwork skills, and catching a ball.

PE.K.4 2008 – Health-Enhancing Physical Fitness: Students achieve and maintain a health-enhancing level of physical fitness.

Young children engage in a variety of physical activities that serve to promote an active lifestyle. The development of students' health knowledge and movement skills begin in kindergarten. Improvement of students' physical fitness abilities will continue to develop.

PE.L.4.4 2008 – Identify the basic effects of physical activity on heart and lung function. Example: Observe and feel fast heart and breathing rates when engaged in skill development and physical fitness activities.

KINDERGARTEN – INDIANA FINE ARTS – VISUAL ARTS STANDARDS

VA.K.8 2008 – INTEGRATED STUDIES: Experience the integrative nature of visual arts, other arts disciplines, and disciplines outside the arts, and understand the arts as a critical component of learning and comprehension in all subject areas.

Students recognize products and processes of visual art and other disciplines, and they create artwork using content and sign systems from other subject areas.

KINDERGARTEN - ILLINOIS SCIENCE STANDARDS

STATE GOAL 11: UNDERSTAND THE PROCESSES OF SCIENTIFIC INQUIRY AND TECHNOLOGICAL DESIGN TO INVESTIGATE QUESTIONS, CONDUCT EXPERIMENTS AND SOLVE PROBLEMS.

A. KNOW AND APPLY THE CONCEPTS, PRINCIPLES AND PROCESSES OF SCIENTIFIC INQUIRY.

11.A. 1a (Early Elementary) – Describe an observed event.

11.A. 1b (Early Elementary) – Develop questions on scientific topics.

11.A. 1c (Early Elementary) – Collect data for investigations using measuring instruments and technologies.

11.A. 1d (Early Elementary) – Record and store data using available technologies.

11.A. 1e (Early Elementary) – Arrange data into logical patterns and describe the patterns.

11.A. 1f (Early Elementary) – Compare observations of individuals and group results.

B. KNOW AND APPLY THE CONCEPTS, PRINCIPLES AND PROCESSES OF TECHNOLOGICAL DESIGN.

11.B. 1a (Early Elementary) – Given a simple design problem, formulate possible solutions.

11.B. 1b (Early Elementary) – Design a device that will be useful in solving the problem.

11.B. 1c (Early Elementary) – Build the device using the materials and tools provide.

11.B. 1d (Early Elementary) – Test the device and record results using given instruments, techniques and measurement methods.

11.B.1e (Early Elementary) – Report the design of the device, the test process and the results in the solving a given problem.

STATE GOAL 12: UNDERSTAND THE FUNDAMENTAL CONCEPTS, PRINCIPLES AND INTERCONNECTIONS OF LIFE, PHYSICAL AND EARTH/SPACE SCIENCES.

A. KNOW AND APPLY CONCEPTS THAT EXPLAIN HOW LIVING THINGS FUNCTION, ADAPT AND CHANGE.

12.A. 1a (Early Elementary) – Identify and describe the component parts of living things (e.g., birds have feather; people have bones, blood, hair, skin) and their major functions.

12.A. 1b (Early Elementary) – Categorize living organisms using a variety of observable features (e.g., size, color, shape, backbone).

B. KNOW AND APPLY CONCEPTS THAT DESCRIBE HOW LIVING THINGS INTERACT WITH EACH OTHER AND WITH THEIR ENVIRONMENT.

12.B. 1a (Early Elementary) – Describe and compare characteristics of living things in relationship to their environments.

12.B. 1b (Early Elementary) – Describe how living things depend on one another for survival.

C. KNOW AND APPLY CONCEPTS THAT DESCRIBE PROPERTIES OF MATTER AND ENERGY AND THE INTERACTIONS BETWEEN THEM.

12.C. 1a (Early Elementary) – Identify and compare sources of energy (e.g., batteries, the sun).

12.C. 1b (Early Elementary) – Compare large-scale physical properties of matter (e.g., size, shape, color, texture, odor).

D. KNOW AND APPLY CONCEPTS THAT DESCRIBE FORCE AND MOTION AND THE PRINCIPLES THAT EXPLAIN THEM.

12.D.1a (Early Elementary) – Identify examples of motion (e.g., moving in a straight line, vibrating, rotating).

12.D. 1b (Early Elementary) – Identify observable forces in nature (e.g., pushes, pulls, gravity, magnetism).

E. KNOW AND APPLY CONCEPTS THAT DESCRIBE THE FEATURES AND PROCESSES OF THE EARTH AND ITS RESOURCES.

12.E. 1a (Early Elementary) – Identify components and describe diverse features of the Earth's land, water and atmospheric systems.

F. KNOW AND APPLY CONCEPTS THAT EXPLAIN THE COMPOSITION AND STRUCTURE OF THE UNIVERSE AND EARTH'S PLACE IN IT.

12.F. 1a (Early Elementary) – Identify and describe characteristics of the sun, Earth and moon as familiar objects in the solar system.

STATE GOAL 13: UNDERSTAND THE RELATIONSHIPS AMONG SCIENCE, TECHNOLOG AND SOCIETY IN HISTORICAL AND CONTEMPARY CONTEXTS.

A. KNOW AND APPLY THE ACCEPTED PRACTICES OF SCIENCE.

13.A. 1C (Early Elementary) – Explain how knowledge can be gained by careful observation.

B. KNOW AND APPLY CONCEPTS THAT DESCRIBE THE INTERACTION BETWEEN SCIECNE, TECHNOLOGY AND SOCIETY.

13.B. 1a (Early Elementary) – Explain the uses of common scientific instruments (e.g., ruler, thermometer, balance, probe, computer).

13.B. 1d (Early Elementary) – Identify and describe ways that science and technology affect people's everyday lives (e.g., transportation, medicine, agriculture, sanitation, communication, occupations).

KINDERGARTEN – ILLINOIS PHYSICAL DEVELOPMENT AND HEALTH STANDARDS

STATE GOAL 19: ACQUIRE MOVEMENT SKILLS AND UNDERSTAND CONCEPTS NEEDED TO ENGAGE IN HEALTH-ENHANCING PHYSICAL ACTIVITY.

A. DEMONSTRATE PHYSICAL COMPETENCY IN INDIVIDUAL AND TEAM SPORTS, CREATIVE MOVEMENT AND LEISURE AND WORK-RELATED ACTIVITIES.

19.A. 1 (Early Elementary) – Demonstrate control when performing fundamental locomotor, nonlocomotor and manipulative skills.

B. ANALYZE VARIOUS MOVEMENT CONCEPTS AND APPLICATIONS.

19.B. 1 (Early Elementary) – Understand spatial awareness and relationships to objects and people.

STATE GOAL 20: ACHIEVE AND MAINTAIN A HEALTH-ENHANCING LEVEL OF PHYSICAL FITNESS BASED UPON CONTINUAL SELF-ASSESSMENT.

A. KNOW AND APPLY THE PRINCIPLES AND COMPONENTS OF HEALTH-RELATED FITNESS.

20.A. 1b (Early Elementary) – Engage in sustained physical activity that causes increased heart rate, muscle strength and range of movement.

B. ASSESS INDIVIDUAL FITNESS LEVELS.

20.B. 1 (Early Elementary) – Describe immediate effects of physical activity on the body (e.g., faster heartbeat, increased pulse rate, increased breathing rate).

STATE GOAL 21: DEVELOP TEAM-BUILDING SKILLS BY WORKING WITH OTHERS THROUGH PHYSICAL ACTIVITY.

A. DEMONSTRATE INDIVIDUAL RESPONSIBILITY DURING GROUP PHYSICAL ACTIVITIES.

21.A. 1a (Early Elementary) – Follow directions and class procedures while participating in physical activities.

21.A. 1b (Early Elementary) – Use identified procedures and safe practices with little or no reinforcement during group physical activities.

21.A. 1c (Early Elementary) – Work independently on tasks for short periods of time.

B. DEMONSTRATE COOPERATIVE SKILLS DURING STRUCTURED GROUP PHYSICAL ACTIVITY.

21.B. 1 (Early Elementary) – Work cooperatively with another to accomplish an assigned task.

STATE GOAL 22: UNDERSTAND PRINCIPLES OF HEALTH PROMOTION AND THE PREVENTION AND TREATMENT OF ILLNESS AND INJURY.

A. EXPLAIN THE BASIC PRINCIPLES OF HEALTH PROMOTION, ILLNESS, PREVENTION AND SAFETY.

22.A. 1b (Early Elementary) – Identify methods of health promotion and illness prevention (e.g., obtaining immunizations, hand washing, brushing and flossing teeth, eating practices, sleep, cleanliness).

C. EXPLAIN HOW THE ENVIRONMENT CAN AFFECT HEALTH.

22.C. 1 (Early Elementary) – Identify sources and causes of environmental health risks (e.g., air, soil, sun, water, noise, food, chemicals).

STATE GOAL 23: UNDERSTAND HUMAN BODY SYSTEMS AND FACTORS THAT INFLUENCE GROWTH AND DEVELOPMENT.

A. DESCRIBE AND EXPLAIN THE STRUCTURE AND FUNCTIONS OF THE HUMAN BODY SYSTEMS AND HOW THEY INTERRELATE.

23.A. 1 (Early Elementary) – Identify basic parts of body systems and their functions (e.g., heart, lungs, eyes).

B. EXPLAIN THE EFFECTS OF HEALTH-RELATED ACTIONS ON THE BODY SYSTEMS.

23.B. 1 (Early Elementary) – Identify healthy actions that influence the functions of the body (e.g., cleanliness, proper diet, exercise).

KINDERGARTEN – ILLINOIS FINE ARTS STANDARDS

STATE GOAL 26: THROUGH CREATING AND PERFORMING, UNDERSTAND HOW WORKS OF ART ARE PRODUCED.

A. UNDERSTAND PROCESSES, TRADITIONAL TOOLS AND MODERN TECHNOLOGIES USED IN THE ARTS

26.B.1d – ***Visual Arts (Early Elementary):*** Demonstrate knowledge and skills to create visual works of art using manipulation, eye-hand coordination, building and imagination.

KINDERGARTEN – COMMON CORE STATE STANDARDS FOR MATH

I. COUNTING AND CARDINALITY

A. Know number names and the count sequence.

K.CC 1. Count to 100 by ones and by tens.

K.CC 3. Write numbers from 0 to 20. Represent a number of objects with a written numeral 0 -20 (with 0 representing a count of no objects).

B. Count to tell number of objects.

K.CC 4. Understand the relationship between numbers and quantities; connect counting to cardinality.

a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.

b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.

c. Understand that each successive number name refers to a quantity that is one larger.

K.CC 5. Count to answer "how man/" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1 – 20, count out that many objects.

C. Compare numbers.

K. CC 6. Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.

II. OPERATIONAL AND ALGEBRAIC THINKING

A. Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

K.OA 1. Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.

K.OA 5. Fluently add and subtract within 5.

III. MEASURMENT AND DATA

A. Describe and compare measurable attributes.

K.MD 1. Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

K.MD 2. Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference.

B. Classify objects and count the number of objects in each category.

K.MD 3. Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.

IV. GEOMETRY

B. Analyze, compare, create, and compose shapes.

K.G 5. Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

KINDERGARTEN – COMMON CORE STATE STANDARDS FOR ENGLISH/LANGUAGE ARTS

I. READING INFORMATIONAL

CC.K.R.I. 1 – Key Ideas and Details: With prompting and support, ask and answer questions about key details in a text.

CC.K.R.I. 2 – Key Ideas and Details: With prompting and support, identify the main topic and retell key details of a text.

CC.K.R.I. 3 – Key Ideas and Details: With prompting and support, describe the connection between two individuals, events, ideas, or pieces of information in a text.

CC.K.R.I. 4 - Craft and Structure: With prompting and support, ask and answer questions about unknown words in a text.

CC.K.R.I. 10 – Range of Reading and Level of Text Complexity: Actively engage in-group reading activities with purpose and understanding.

II. READING FOUNDATIONAL SKILLS

CC.K.R.F 1 – Print Concepts: Demonstrate understanding of the organization and basics features of print.

CC.K.R.F. 1.a – Print Concepts: Follow words from left to right, top to bottom, and page by page.

CC.K.R.F. 1.b – Print Concepts: Recognize that spoken words are represented in written language by specific sequences of letters.

CC.K.R.F. 1.c – Print Concepts: Understand that words are separated by spaces in print.

CC.K.R.F. 2 – Phonological Awareness: Demonstrate understanding of spoken words, syllables, and sounds (phonemes).

CC.K.R.F 3 – Phonics and Word Recognition: Know and apply grade-level phonics and word analysis skills in decoding words.

III. WRITING

CC.K.W. 2 – Text Types and Purposes: Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.

CC.K.W. 8 – Research to Build and Present Knowledge: With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

IV. SPEAKING LISTENING

CC.K.SL. 1 – Comprehension and Collaboration: Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.

CC.K.SL. 1.a – Comprehension and Collaboration: Follow agreed-upon rules for discussion (e.g., listening to others and taking turns speaking about the topics and texts under discussion).

CC.K.SL. 1.b – Comprehension and Collaboration: Continue a conversation through multiple exchanges.

CC.K.SL. 2 – Comprehension and Collaboration: Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.

CC.K.SL. 3 – Comprehension and Collaboration: Ask and answer questions in order to seek help, get information, or clarify something that is not understood.

CC.K.SL. 5 – Presentation of Knowledge and Ideas: Add drawings or other visual displays to descriptions as desired to provide additional detail.

CC.K.SL. 6 – Presentation of Knowledge and Ideas: Speak audibly and express thoughts, feelings, and ideas clearly.

V. LANGUAGE

CC.K.L. 1 – Conventions of Standard English: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

CC.K.L. 1.d – Conventions of Standard English: Understand and use question words (interrogatives)(e.g., who, what, where, when, why, how).

CC.K.L. 2 – Conventions of Standard English: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

CC.K.L. 4 – Vocabulary Acquisition and Use: Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on kindergarten reading and content.

CC.K.L. 5.a - Vocabulary Acquisition and Use: Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent.

CC.K.L. 5.c – Vocabulary Acquisition and Use: Identify real-life connections between words and their use (e.g., note places at school that are colorful).

CC.K.L. 6 – Vocabulary Acquisition and Use: Use words and phrases acquired through conversations, reading and being read to, and responding to text.

KINDERGARTEN - NEXT GENERATION SCIENCE STANDARDS

***REFER TO SECOND GRADE – NEXT GENERATION SCIENCE STANDARDS**

FIRST GRADE - INDIANA SCIENCE STANDARDS

I. SCIENCE – PROCESS STANDANDS

The Nature of Science:

- Use a scientific notebook to record predictions, questions and observations about data with pictures, numbers or in words.
- Conduct investigations that may happen over time as a class, in small groups, or independently.
- Generate questions and make observations about natural processes.
- Make predictions based on observations.
- Discuss observations with peers and be able to support your conclusion with evidence.
- Make and use simple equipment and tools to gather data and extend the senses.

The Design Process:

- Identify a need or problem to be solved.
- Document the design throughout the entire design process.
- Brainstorm potential solutions.
- Select a solution to the need or problem.
- Select the materials to develop a solution.
- Create the solution.
- Evaluate and test how well the solution meets the goal.
- Communicate the solution with drawings or prototypes.
- Communicate how to improve the solutions.

II. SCIENCE – CONTENT STANDARDS

Standard 1: Physical Science

Core Standard: Describe objects in terms of the materials that compose them and in terms of their physical properties.

1.1.1. Use all senses as appropriate to identify the component parts of objects and the materials from which they are made.

1.1.2. Characterize materials as solid or liquid investigate their properties, record observations and explain the choices to others based on evidence.

1.1.3. Experiment with simple methods for separating solids and liquids based on their physical properties.

Standard 2: Earth and Space Science

Core Standard: Observe, describe and ask questions about soil components and properties.

1.2.2. Choose, test and use tools to separate soil samples into component parts.

Standard 3: Life Science

Core Standard: Observe, describe and ask questions about living things and their relationship to their environments.

1.3.1 Classify living organisms according to variations in specific physical feature (e.g., body coverings, appendages) and describe how those features may provide an advantage for survival in different environments.

1.3.2 Observe organisms closely over a period of time in different habitats such as terrariums, aquariums, and lawns and trees. Draw and write about observations.

1.3.3 Observe and explain that plants and animals have basic needs for growth and survival; plants need to take in water and need light, and animals need to take in water and food and have a way to dispose of waste.

1.3.4 Describe how animals' habitats, including plants, meet their needs for food, water, shelter and an environment in which they can live.

Standard 4: Science, Engineering and Technology

Core Standard: Determine properties of natural and man-made materials and their most important uses.

1.4.1 Use all senses as appropriate to sort objects as being composed of materials that are naturally occurring, human made or a combination of the two.

1.4.2 Choose two animals that build shelters within their habitats. Compare the shelters in terms of the materials and tools they use and the type and purpose of shelter they provide.

FIRST GRADE – INDIANA PHYSICAL EDUCATION STANDARDS

PE.1.1 2008 – Motor Skills and Movement Patterns: Students demonstrate competency in motor skills and movement needed to perform a variety of physical activities.

Students observe, learn, practice, and develop fundamental movements. In first grade, this foundation continues to be established and reinforced to facilitate motor skill acquisition, which gives students the capacity for successful levels of performance as they mature. Locomotor (traveling actions), nonlocomotor (movement in place), and manipulative (object handling) skills are being combined at a fundamental level to challenge the students.

PE.1.1.2 2008 – Perform nonlocomotor skills with developmentally appropriate challenges to reinforce learning fundamental movements. Example: Demonstrate static balances and dynamic balance on stable and unstable objects.

PE.1.1.3 2008 – Perform manipulative skills with developmentally appropriate challenges to reinforce learning fundamental movements. Example: Demonstrate eye-hand and eye-foot coordination in skill development practice/activities and physical fitness activities/games.

PE.1.2 2008 – Movement Concepts: Students demonstrate an understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities.

Students learn to utilize cognitive information to reinforce the fundamental motor skills they acquired in kindergarten. Knowledge and application of movement concepts (body awareness, spatial awareness, qualities of movement, relationships) and strategies enhance independent learning and effective participation in physical activity.

PE.1.2.3 2008 – Demonstrate variations in moving with directional, spatial and temporal awareness. Example: Move in various directions at various levels, in various patterns, and at various speeds in skill development activities.

PE.1.2.4 2008 – Identify major body parts, muscles and bones used to move and support the body. Example: Verbally and visually identify body parts, muscles and bones.

PE.1.4 2008 – Health-Enhancing Physical Fitness: Students achieve and maintain a health-enhancing level of physical fitness.

Young children engage in a variety of physical activities that serve to promote an active lifestyle. In first grade, students begin to understand the effects of physical activity on the body: increased heart rate, increased rate of respiration and an increase in perspiration during exercise. They participate in activities of various intensities and can describe the

changes these activities produce within their bodies. Improvement of students' physical fitness is expected.

PE.1.4.1 2008 – Demonstrate how increasing the intensity of an activity will increase the heart rate. Example: Describe and monitor the difference in the heart rate during a five-minute warm-up walk, run or stretching as compared to 20 minutes of motor skill development and physical fitness stations.

PE.1.4.2 2008 – Describe the basic effect of regular exercise on muscles. Example: Compare the scores from three exercise trials and draw conclusions.

PE.1.4.4 2008 – Participate in activities that increase cardio-respiratory endurance. Example: Demonstrate engagement in physical fitness activities and describe the effects of exercise on the heart and lungs.

PE.1.5 2008 – Responsible Personal and Social Behavior: Students exhibit responsible personal and social behavior the respects self and others in physical activity settings.

Students develop respect for individual similarities and differences through positive interaction among participants in physical activity. Variations exist in motor performance, mental and physical abilities, physical characteristics, race, and socioeconomic status. Cooperation and teamwork promote personal and group success in activity settings. Students learn and apply safety practices.

PE.1.5.3 2008 – Demonstrate cooperative play with children of varying abilities. Example: Participate with a child of different ability in class activities.

PE.1.5.4 2008 – Demonstrate respect and compassion for children with individual differences. Example: Dance with an assigned classmate; support the participation of a student with a disability in a skill development of physical fitness activity/game.

FIRST GRADE – INDIANA FINE ARTS – VISUAL ARTS STANDARDS

VA.K.8 2008 – INTEGRATED STUDIES: Experience the integrative nature of visual arts, other arts disciplines, and disciplines outside the arts, and understand the arts as a critical component of learning and comprehension in all subject areas.

Students recognize products and processes of visual art and other disciplines, and they create artwork using content and sign systems from other subject areas.

FIRST GRADE - ILLINOIS SCIENCE STANDARDS

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A. KNOW AND APPLY THE CONCEPTS, PRINCIPLES AND PROCESSES OF SCIENTIFIC INQUIRY.

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11.B. 1a (Early Elementary) – Given a simple design problem, formulate possible solutions.

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12.B. 1a (Early Elementary) – Describe and compare characteristics of living things in relationship to their environments.

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C. KNOW AND APPLY CONCEPTS THAT DESCRIBE PROPERTIES OF MATTER AND ENERGY AND THE INTERACTIONS BETWEEN THEM.

12.C. 1a (Early Elementary) – Identify and compare sources of energy (e.g., batteries, the sun).

12.C. 1b (Early Elementary) – Compare large-scale physical properties of matter (e.g., size, shape, color, texture, odor).

D. KNOW AND APPLY CONCEPTS THAT DESCRIBE FORCE AND MOTION AND THE PRINCIPLES THAT EXPLAIN THEM.

12.D. 1b (Early Elementary) – Identify observable forces in nature (e.g., pushes, pulls, gravity, magnetism).

E. KNOW AND APPLY CONCEPTS THAT DESCRIBE THE FEATURES AND PROCESSES OF THE EARTH AND ITS RESOURCES.

12.D.1a (Early Elementary) – Identify examples of motion (e.g., moving in a straight line, vibrating, rotating).

12.E. 1a (Early Elementary) – Identify components and describe diverse features of the Earth's land, water and atmospheric systems.

F. KNOW AND APPLY CONCEPTS THAT EXPLAIN THE COMPOSITION AND STRUCTURE OF THE UNIVERSE AND EARTH'S PLACE IN IT.

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A. KNOW AND APPLY THE ACCEPTED PRACTICES OF SCIENCE.

13.A. 1C (Early Elementary) – Explain how knowledge can be gained by careful observation.

B. KNOW AND APPLY CONCEPTS THAT DESCRIBE THE INTERACTION BETWEEN SCIECNE, TECHNOLOGY AND SOCIETY.

13.B. 1a (Early Elementary) – Explain the uses of common scientific instruments (e.g., ruler, thermometer, balance, probe, computer).

13.B. 1d (Early Elementary) – Identify and describe ways that science and technology affect people's everyday lives (e.g., transportation, medicine, agriculture, sanitation, communication, occupations).

FIRST GRADE – ILLINOIS PHYSICAL DEVELOPMENT AND HEALTH STANDARDS

STATE GOAL 19: ACQUIRE MOVEMENT SKILLS AND UNDERSTAND CONCEPTS NEEDED TO ENGAGE IN HEALTH-ENHANCING PHYSICAL ACTIVITY.

A. DEMONSTRATE PHYSICAL COMPETENCY IN INDIVIDUAL AND TEAM SPORTS, CREATIVE MOVEMENT AND LEISURE AND WORK-RELATED ACTIVITIES.

19.A. 1 (Early Elementary) – Demonstrate control when performing fundamental locomotor, nonlocomotor and manipulative skills.

B. ANALYZE VARIOUS MOVEMENT CONCEPTS AND APPLICATIONS.

19.B. 1 (Early Elementary) – Understand spatial awareness and relationships to objects and people.

STATE GOAL 20: ACHIEVE AND MAINTAIN A HEALTH-ENHANCING LEVEL OF PHYSICAL FITNESS BASED UPON CONTINUAL SELF-ASSESSMENT.

A. KNOW AND APPLY THE PRINCIPLES AND COMPONENTS OF HEALTH-RELATED FITNESS.

20.A. 1b (Early Elementary) – Engage in sustained physical activity that causes increased heart rate, muscle strength and range of movement.

B. ASSESS INDIVIDUAL FITNESS LEVELS.

20.B. 1 (Early Elementary) – Describe immediate effects of physical activity on the body (e.g., faster heartbeat, increased pulse rate, increased breathing rate).

STATE GOAL 21: DEVELOP TEAM-BUILDING SKILLS BY WORKING WITH OTHERS THROUGH PHYSICAL ACTIVITY.

A. DEMONSTRATE INDIVIDUAL RESPONSIBILITY DURING GROUP PHYSICAL ACTIVITIES.

21.A. 1a (Early Elementary) – Follow directions and class procedures while participating in physical activities.

21.A. 1b (Early Elementary) – Use identified procedures and safe practices with little or no reinforcement during group physical activities.

21.A. 1c (Early Elementary) – Work independently on tasks for short periods of time.

B. DEMONSTRATE COOPERATIVE SKILLS DURING STRUCTURED GROUP PHYSICAL ACTIVITY.

21.B. 1 (Early Elementary) – Work cooperatively with another to accomplish an assigned task.

STATE GOAL 22: UNDERSTAND PRINCIPLES OF HEALTH PROMOTION AND THE PREVENTION AND TREATMENT OF ILLNESS AND INJURY.

A. EXPLAIN THE BASIC PRINCIPLES OF HEALTH PROMOTION, ILLNESS, PREVENTION AND SAFETY.

22.A. 1b (Early Elementary) – Identify methods of health promotion and illness prevention (e.g., obtaining immunizations, hand washing, brushing and flossing teeth, eating practices, sleep, cleanliness).

C. EXPLAIN HOW THE ENVIRONMENT CAN AFFECT HEALTH.

22.C. 1 (Early Elementary) – Identify sources and causes of environmental health risks (e.g., air, soil, sun, water, noise, food, chemicals).

STATE GOAL 23: UNDERSTAND HUMAN BODY SYSTEMS AND FACTORS THAT INFLUENCE GROWTH AND DEVELOPMENT.

A. DESCRIBE AND EXPLAIN THE STRUCTURE AND FUNCTIONS OF THE HUMAN BODY SYSTEMS AND HOW THEY INTERRELATE.

23.A. 1 (Early Elementary) – Identify basic parts of body systems and their functions (e.g., heart, lungs, eyes).

B. EXPLAIN THE EFFECTS OF HEALTH-RELATED ACTIONS ON THE BODY SYSTEMS.

23.B. 1 (Early Elementary) – Identify healthy actions that influence the functions of the body (e.g., cleanliness, proper diet, exercise).

FIRST GRADE – ILLINOIS FINE ARTS STANDARDS

STATE GOAL 26: THROUGH CREATING AND PERFORMING, UNDERSTAND HOW WORKS OF ART ARE PRODUCED.

A. UNDERSTAND PROCESSES, TRADITIONAL TOOLS AND MODERN TECHNOLOGIES USED IN THE ARTS

26.B.1d – ***Visual Arts (Early Elementary):*** Demonstrate knowledge and skills to create visual works of art using manipulation, eye-hand coordination, building and imagination.

FIRST GRADE - COMMON CORE STATE STANDARDS FOR MATH

I. OPERATIONS AND ALGEBRAIC THINKING

C. Add and subtract within 20.

1.0A 5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).

1.0A 6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows that 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the know equivalent 6 + 6 + 1 = 12 + 1 = 13).

II. NUMBER AND OPERATIONS IN BASE TEN

A. Extend the counting sequence.

1.NBT 1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

C. Use place value understanding and properties of operations to add and subtract.

1.NBT 4. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawing and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.

III. MEASUREMENT AND DATA

A. Measure lengths indirectly and by iterating length units.

1.MD 1. Order three objects by length; compare the lengths of two objects indirectly by using a third object.

1.MD 2. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of the same-size length units that span it with no gaps or overlaps. *Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.*

B. Represent and interpret data.

1.MD 4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points; how many in each category, and how many more or less are in one category than in another.

FIRST GRADE – COMMON CORE STATE STANDARDS FOR ENGLISH/LANGUAGE ARTS

I. READING INFORMATIONAL

CC.1.R.I. 1 – Key Ideas and Details: Ask and answer questions about key details in a text.

CC.1.R.I. 2 – Key Ideas and Details: Identify the main topic and retell key details of a text.

CC.1.R.I. 3 – Key Ideas and Details: Describe the connection between two individuals, events, ideas, or pieces of information in a text.

CC.1.R.I. 4 - Craft and Structure: Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.

CC.1.R.I. 5 – Craft and Structure: Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.

CC.1.R.I. 6 – Craft and Structure: Distinguish between information provided by pictures or other illustrations and information provided by the words in a text.

CC.1.R.I. 7 – Integration of Knowledge and Ideas: Use the illustrations and details in a text to describe its key ideas.

CC.1.R.I. 10 – Range of Reading and Level of Text Complexity: With prompting and support, read informational texts appropriately complex for grade 1.

II. READING FOUNDATIONAL SKILLS

CC.1.R.F 1 – Print Concepts: Demonstrate understanding of the organization and basics features of print.

CC.1.R.F 2 – Phonological Awareness: Demonstrate understanding of spoken words, syllables, and sounds (phonemes).

CC.1.R.F 3 – Phonics and Word Recognition: Know and apply grade-level phonics and word analysis skills in decoding words.

CC.1.R.F 4 – Read with sufficient accuracy and fluency to support comprehension.

CC.1.R.F 4.a – Read on-level text with purpose and understanding.

CC.1.R.F 4.b - Read on-level text orally with accuracy, appropriate rate, and expression.

III. WRITING

CC.1.W. 8 – Research to Build and Present Knowledge: With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

IV. SPEAKING LISTENING

CC.1.SL. 1 – Comprehension and Collaboration: Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.

CC.1.SL. 1.a – Comprehension and Collaboration: Follow agreed-upon rules for discussion (e.g., listening to others and taking turns speaking about the topics and texts under discussion).

CC.1.SL. 1.b – Comprehension and Collaboration: Build on others' talk in conversations by responding to the comments of others through multiple exchanges.

CC.1.SL 1.c – Comprehension and Collaboration: Ask questions to clear up any confusion about the topics and texts under discussion.

CC.1.SL. 2 – Comprehension and Collaboration: Ask and answer questions about key details in a text read aloud or information presented orally or through other media.

CC.1.SL. 3 – Comprehension and Collaboration: Ask and answer questions in order to seek help, get information, or clarify something that is not understood.

CC.1.SL. 4 – Presentation of Knowledge and Ideas: Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.

CC.1.SL. 5 – Presentation of Knowledge and Ideas: Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.

V. LANGUAGE

CC.1.L.1 – Conventions of Standard English: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

CC.1.L.2 – Conventions of Standard English: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

CC.1.L.4 – Vocabulary Acquisition and Use: Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 1 reading and content, choosing flexibly from an array of strategies.

FIRST GRADE - NEXT GENERATION SCIENCE STANDARDS

***REFER TO SECOND GRADE – NEXT GENERATION SCIENCE STANDARDS**

SECOND GRADE - INDIANA SCIENCE STANDARDS

I. SCIENCE – PROCESS STANDANDS

The Nature of Science:

- Use a scientific notebook to record predictions, questions and observations about data with pictures, numbers or in words.
- Conduct investigations that may happen over time as a class, in small groups, or independently.
- Generate questions and make observations about natural processes.
- Make predictions based on observations.
- Discuss observations with peers and be able to support your conclusion with evidence.
- Make and use simple equipment and tools to gather data and extend the senses.

The Design Process:

- Identify a need or problem to be solved.
- Document the design throughout the entire design process.
- Brainstorm potential solutions.
- Select a solution to the need or problem.
- Select the materials to develop a solution.
- Create the solution.
- Evaluate and test how well the solution meets the goal.
- Communicate the solution with drawings or prototypes.
- Communicate how to improve the solutions.

II. SCIENCE – CONTENT STANDARDS

Standard 1: Physical Science

Core Standard: Observe and describe the motion of an object and how it changes when a force is applied to it.

2.1.4 Observe, sketch, demonstrate and compare how objects can move in different ways (e.g., straight, zigzag, back-and-forth, rolling, fast and slow).

2.1.5 Describe the position or motion of an object relative to a point of reference.

2.1.6 Observe, demonstrate, sketch and compare how applied force (i.e., push or pull) changes the motion of objects.

2.1.7 Investigate the motion of objects when they are acted upon at a distance by forces like gravity and magnetism.

Standard 3: Life Science

Core Standard: Observe, ask questions about and describe how organisms change their forms and behaviors during their life cycles.

2.3.1 Observe closely over a period of time and then record in pictures and words the changes in plants and animals throughout their life cycles-including details of their body plan, structure and timing of growth, reproduction and death.

2.3.2 Compare and contrast details of body plans and structures within the life cycles of plants and animals.

SECOND GRADE – INDIANA PHYSICAL EDUCATION STANDARDS

PE.2.1 2008 – Motor Skills and Movement Patterns: Students demonstrate competency in motor skills and movement patterns needed to perform a variety of physical activities.

Students are practicing, developing, and refining fundamental movement skills to achieve maturity. In second grade, students are able to combine locomotor (traveling actions), nonlocomotor (movement in place), and manipulative (object handling) skills. Students practice and develop these combinations of fundamental skills.

PE.2.1.2 2008 – Perform stability skills proficiently and in combinations, with developmentally appropriate challenges. Example: Demonstrate static balance and dynamic balance in combinations on stable and unstable objects; weight transfer/tumbling skills.

PE.2.1.3 2008 – Perform manipulative skills proficiently with developmentally appropriate challenges. Example: Demonstrate eye-hand and eye-foot coordination skills in physical fitness activities/games.

PE.2.2 2008 - Movement Concepts: Students demonstrate an understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities.

Students learn to utilize cognitive information to achieve mature (proficient) fundamental motor skills. Knowledge and application of movement concepts (body, spatial, directional, and temporal awareness), relationships, and strategies enhance independent learning and effective participation in physical activity.

PE.2.2.1 2008 – Identify and demonstrate efficient movement with objects that present balance, change of direction and spatial awareness challenges.

PE.2.4. 2008 – Health-Enhancing Physical Fitness: Students achieve and maintain a health-enhancing level of physical fitness.

The development of students' health knowledge and movement skills continue in second grade. Students participate in physical activity for a longer time and at a higher intensity. Their physical fitness is expected to improve and be maintained. The relationship between physical fitness and an active lifestyle is emphasized.

PE.2.4.3 2008 – Develop and describe the components of health-related physical fitness. Example: Participate in a circuit training activity and follow with discussion to identify the components of health-related physical fitness.

PE.2.5. 2008 – Responsible Personal and Social Behavior: Students exhibit responsible personal and social behavior that respects self and others in physical activity settings.

Students develop respect for individual similarities and differences through positive interaction among participants in physical activity. Variations exist in motor performance, mental and physical abilities, physical characteristics, race, and socioeconomic status. Cooperation and teamwork promote personal and group success in activity settings. Students continue to learn and apply safety practices in an active class.

PE.2.5.3 2008 – Demonstrate cooperative play with a partner and small or large groups regardless of physical fitness activities and practice positive sportsmanship.

PE.2.5.4 2008 – Demonstrate respect and compassion for students with individuals differences. Example: Demonstrate assistance and encouragement to a peer who is struggling with a skill.

SECOND GRADE – INDIANA FINE ARTS – VISUAL ARTS STANDARDS

VA.2.8 2008 – INTEGRATED STUDIES: Experience the integrative nature of visual arts, other arts disciplines, and disciplines outside the arts, and understand the arts as a critical component of learning and comprehension in all subject areas.

Students identify connections between visual art and other disciplines, and they create artwork using content and sign system from others subject areas.

SECOND GRADE - ILLINOIS SCIENCE STANDARDS

STATE GOAL 11: UNDERSTAND THE PROCESSES OF SCIENTIFIC INQUIRY AND TECHNOLOGICAL DESIGN TO INVESTIGATE QUESTIONS, CONDUCT EXPERIMENTS AND SOLVE PROBLEMS.

A. KNOW AND APPLY THE CONCEPTS, PRINCIPLES AND PROCESSES OF SCIENTIFIC INQUIRY.

11.A. 1a (Early Elementary) – Describe an observed event.

11.A. 1b (Early Elementary) – Develop questions on scientific topics.

11.A. 1c (Early Elementary) – Collect data for investigations using measuring instruments and technologies.

11.A. 1d (Early Elementary) – Record and store data using available technologies.

11.A. 1e (Early Elementary) – Arrange data into logical patterns and describe the patterns.

11.A. 1f (Early Elementary) – Compare observations of individuals and group results.

B. KNOW AND APPLY THE CONCEPTS, PRINCIPLES AND PROCESSES OF TECHNOLOGICAL DESIGN.

11.B. 1a (Early Elementary) – Given a simple design problem, formulate possible solutions.

11.B. 1b (Early Elementary) – Design a device that will be useful in solving the problem.

11.B. 1c (Early Elementary) – Build the device using the materials and tools provide.

11.B. 1d (Early Elementary) – Test the device and record results using given instruments, techniques and measurement methods.

11.B.1e (Early Elementary) – Report the design of the device, the test process and the results in the solving a given problem.

STATE GOAL 12: UNDERSTAND THE FUNDAMENTAL CONCEPTS, PRINCIPLES AND INTERCONNECTIONS OF LIFE, PHYSICAL AND EARTH/SPACE SCIENCES.

A. KNOW AND APPLY CONCEPTS THAT EXPLAIN HOW LIVING THINGS FUNCTION, ADAPT AND CHANGE.

12.A. 1a (Early Elementary) – Identify and describe the component parts of living things (e.g., birds have feather; people have bones, blood, hair, skin) and their major functions.

12.A. 1b (Early Elementary) – Categorize living organisms using a variety of observable features (e.g., size, color, shape, backbone).

B. KNOW AND APPLY CONCEPTS THAT DESCRIBE HOW LIVING THINGS INTERACT WITH EACH OTHER AND WITH THEIR ENVIRONMENT.

12.B. 1a (Early Elementary) – Describe and compare characteristics of living things in relationship to their environments.

12.B. 1b (Early Elementary) – Describe how living things depend on one another for survival.

C. KNOW AND APPLY CONCEPTS THAT DESCRIBE PROPERTIES OF MATTER AND ENERGY AND THE INTERACTIONS BETWEEN THEM.

12.C. 1a (Early Elementary) – Identify and compare sources of energy (e.g., batteries, the sun).

12.C. 1b (Early Elementary) – Compare large-scale physical properties of matter (e.g., size, shape, color, texture, odor).

D. KNOW AND APPLY CONCEPTS THAT DESCRIBE FORCE AND MOTION AND THE PRINCIPLES THAT EXPLAIN THEM.

12.D.1a (Early Elementary) – Identify examples of motion (e.g., moving in a straight line, vibrating, rotating).

12.D. 1b (Early Elementary) – Identify observable forces in nature (e.g., pushes, pulls, gravity, magnetism).

E. KNOW AND APPLY CONCEPTS THAT DESCRIBE THE FEATURES AND PROCESSES OF THE EARTH AND ITS RESOURCES.

12.E. 1a (Early Elementary) – Identify components and describe diverse features of the Earth's land, water and atmospheric systems.

F. KNOW AND APPLY CONCEPTS THAT EXPLAIN THE COMPOSITION AND STRUCTURE OF THE UNIVERSE AND EARTH'S PLACE IN IT.

12.F. 1a (Early Elementary) – Identify and describe characteristics of the sun, Earth and moon as familiar objects in the solar system.

STATE GOAL 13: UNDERSTAND THE RELATIONSHIPS AMONG SCIENCE, TECHNOLOG AND SOCIETY IN HISTORICAL AND CONTEMPARY CONTEXTS

A. KNOW AND APPLY THE ACCEPTED PRACTICES OF SCIENCE.

13.A. 1C (Early Elementary) – Explain how knowledge can be gained by careful observation.

B. KNOW AND APPLY CONCEPTS THAT DESCRIBE THE INTERACTION BETWEEN SCIECNE, TECHNOLOGY AND SOCIETY.

13.B. 1a (Early Elementary) – Explain the uses of common scientific instruments (e.g., ruler, thermometer, balance, probe, computer).

13.B. 1d (Early Elementary) – Identify and describe ways that science and technology affect people's everyday lives (e.g., transportation, medicine, agriculture, sanitation, communication, occupations).

SECOND GRADE – ILLINOIS PHYSICAL DEVELOPMENT AND HEALTH STANDARDS

STATE GOAL 19: ACQUIRE MOVEMENT SKILLS AND UNDERSTAND CONCEPTS NEEDED TO ENGAGE IN HEALTH-ENHANCING PHYSICAL ACTIVITY.

A. DEMONSTRATE PHYSICAL COMPETENCY IN INDIVIDUAL AND TEAM SPORTS, CREATIVE MOVEMENT AND LEISURE AND WORK-RELATED ACTIVITIES.

19.A. 1 (Early Elementary) – Demonstrate control when performing fundamental locomotor, nonlocomotor and manipulative skills.

B. ANALYZE VARIOUS MOVEMENT CONCEPTS AND APPLICATIONS.

19.B. 1 (Early Elementary) – Understand spatial awareness and relationships to objects and people.

STATE GOAL 20: ACHIEVE AND MAINTAIN A HEALTH-ENHANCING LEVEL OF PHYSICAL FITNESS BASED UPON CONTINUAL SELF-ASSESSMENT.

A. KNOW AND APPLY THE PRINCIPLES AND COMPONENTS OF HEALTH-RELATED FITNESS.

20.A. 1b (Early Elementary) – Engage in sustained physical activity that causes increased heart rate, muscle strength and range of movement.

B. ASSESS INDIVIDUAL FITNESS LEVELS.

20.B. 1 (Early Elementary) – Describe immediate effects of physical activity on the body (e.g., faster heartbeat, increased pulse rate, increased breathing rate).

STATE GOAL 21: DEVELOP TEAM-BUILDING SKILLS BY WORKING WITH OTHERS THROUGH PHYSICAL ACTIVITY.

A. DEMONSTRATE INDIVIDUAL RESPONSIBILITY DURING GROUP PHYSICAL ACTIVITIES.

21.A. 1a (Early Elementary) – Follow directions and class procedures while participating in physical activities.

21.A. 1b (Early Elementary) – Use identified procedures and safe practices with little or no reinforcement during group physical activities.

21.A. 1c (Early Elementary) – Work independently on tasks for short periods of time.

B. DEMONSTRATE COOPERATIVE SKILLS DURING STRUCTURED GROUP PHYSICAL ACTIVITY.

21.B. 1 (Early Elementary) – Work cooperatively with another to accomplish an assigned task.

STATE GOAL 22: UNDERSTAND PRINCIPLES OF HEALTH PROMOTION AND THE PREVENTION AND TREATMENT OF ILLNESS AND INJURY.

A. EXPLAIN THE BASIC PRINCIPLES OF HEALTH PROMOTION, ILLNESS, PREVENTION AND SAFETY.

22.A. 1b (Early Elementary) – Identify methods of health promotion and illness prevention (e.g., obtaining immunizations, hand washing, brushing and flossing teeth, eating practices, sleep, cleanliness).

C. EXPLAIN HOW THE ENVIRONMENT CAN AFFECT HEALTH.

22.C. 1 (Early Elementary) – Identify sources and causes of environmental health risks (e.g., air, soil, sun, water, noise, food, chemicals).

STATE GOAL 23: UNDERSTAND HUMAN BODY SYSTEMS AND FACTORS THAT INFLUENCE GROWTH AND DEVELOPMENT.

A. DESCRIBE AND EXPLAIN THE STRUCTURE AND FUNCTIONS OF THE HUMAN BODY SYSTEMS AND HOW THEY INTERRELATE.

23.A. 1 (Early Elementary) – Identify basic parts of body systems and their functions (e.g., heart, lungs, eyes).

B. EXPLAIN THE EFFECTS OF HEALTH-RELATED ACTIONS ON THE BODY SYSTEMS.

23.B. 1 (Early Elementary) – Identify healthy actions that influence the functions of the body (e.g., cleanliness, proper diet, exercise).

SECOND GRADE – ILLINOIS FINE ARTS STANDARDS

STATE GOAL 26: THROUGH CREATING AND PERFORMING, UNDERSTAND HOW WORKS OF ART ARE PRODUCED.

A. UNDERSTAND PROCESSES, TRADITIONAL TOOLS AND MODERN TECHNOLOGIES USED IN THE ARTS

26.B.1d – ***Visual Arts (Early Elementary):*** Demonstrate knowledge and skills to create visual works of art using manipulation, eye-hand coordination, building and imagination.

SECOND GRADE - COMMON CORE STATE STANDARDS FOR MATH

I. OPERATIONS AND ALGEBRAIC THINKING

B. Add and subtract within 20.

2.OA 2. Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.

C. Work with equal groups of objects to gain foundations for multiplication.

2.OA 3. Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.

2.OA 4. Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.

II. NUMBER AND OPERATIONS IN BASE TEN

A. Understand place value.

2.NBT 1. Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:

a. 100 can be thought of as bundle of ten tens – called a "hundred".

b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).

2.NBT 2. Count within 1000; skip-count by 5s, 10s, and 100s.

2.NBT 3. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

B. Use place value understanding and properties of operations to add and subtract.

2.NBT 5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

2.NBT 6. Add up to four two-digit numbers using strategies based on place value and properties of operations.

2.NBT 7. Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding and subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.

III. MEASUREMENT AND DATA

A. Measure and estimate lengths in standard units.

2.MD 1. Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

2.MD 3. Estimate lengths using units of inches, feet, centimeters, and meters.

B. Work with time and money.

2.MD 8. Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have?

C. Represent and interpret data.

2.MD 10. Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.

SECOND GRADE – COMMON CORE STATE STANDARDS FOR ENGLISH/LANGUAGE ARTS

I. READING INFORMATIONAL

CC.2.R.I. 1 – Key Ideas and Details: Ask and answer questions such as who, what, where, when, why, and how to demonstrate understanding of key details in a text.

CC.2.R.I. 2 – Key Ideas and Details: Identify the main topic of a multi-paragraph text as well as the focus of specific paragraphs within the text.

CC.2.R.I. 3 – Key Ideas and Details: Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.

CC.2.R.I. 4 - Craft and Structure: Determine the meaning of words and phrases in a text relevant to grade 2 topic or subject area.

CC.2.R.I. 5 – Craft and Structure: Know and use various text features (e.g., captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to locate key facts or information in a text efficiently.

CC.2.R.I. 6 – Craft and Structure: Identify the main purpose of a text, including what the author wants to answer, explain, or describe.

CC.2.R.I. 7 – Integration of Knowledge and Ideas: Explain how specific images (e.g., a diagram showing how a machine works) contribute to and clarify a text.

CC.2.R.I. 10 – Range of Reading and Level of Text Complexity: By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 2-3 text complexity band proficiently, with scaffolding as needed at the high end of the range.

II. READING FOUNDATIONAL SKILLS

CC.2.R.F 3 – Phonics and Word Recognition: Know and apply grade-level phonics and word analysis skills in decoding words.

CC.2.R.F 4 – Fluency: Read with sufficient accuracy and fluency to support comprehension.

CC.2.R.F 4.a – Read on-level text with purpose and understanding.

CC.2.R.F 4.b - Read on-level text orally with accuracy, appropriate rate, and expression.

CC.2.R.F 4.c – Use text to confirm or self-correct word recognition and understanding, rereading as necessary.

III. WRITING

CC.2.W. 8 – Research to Build and Present Knowledge: Recall information from experiences or gather information from provided sources to answer a question.

IV. SPEAKING LISTENING

CC.2.SL. 1 – Comprehension and Collaboration: Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.

CC.2.SL. 1.a – Comprehension and Collaboration: Follow agreed-upon rules for discussion (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).

CC.2.SL. 1.b – Comprehension and Collaboration: Build on others' talk in conversations by linking their comments to the remarks of others.

CC.2.SL 1.c – Comprehension and Collaboration: Ask for clarification and further explanation as needed about the topics and texts under discussion.

CC.2.SL. 2 – Comprehension and Collaboration: Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.

CC.2.SL. 3 – Comprehension and Collaboration: Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.

CC.2.SL. 4 – Presentation of Knowledge and Ideas: Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences.

V. LANGUAGE

CC.2.L 1 – Conventions of Standard English: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

CC.2.L 2 – Conventions of Standard English: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

CC.2.L 3 – Knowledge of Language: Use knowledge of language and its conventions when writing, speaking, reading or listening.

CC.2.L 4 – Vocabulary Acquisition and Use: Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 2 reading and content, choosing flexibly from an array of strategies.

CC.2.L. 6 – Vocabulary Acquisition and Use: Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., When other kids are happy that makes me happy.)

SECOND GRADE - NEXT GENERATION SCIENCE STANDARDS

A. DIMENSION 1: SCIENCE AND ENGINEERING PRACTICES THAT ARE ACHIEVED BY THE STUDENTS DURING THE MOONBASE EXPLORER PROGRAM:

1) Asking questions (for science) and defining problems (for engineering).
2) Developing and using models.
3) Planning and carrying out investigations.
4) Analyzing and interpreting data.
5) Using mathematics and computation thinking.
6) Constructing explanations (for science) and designing solutions (for engineering).
7) Engaging in argument from evidence.
8) Obtaining, evaluation, and communicating information.

B. DIMENSION 2: SEVEN CROSSCUTTING SCIENCE AND ENGINEERING CONCEPTS THAT STUDENTS UTILIZE DURING THE MOONBASE EXPLORER PROGRAM:

1. Pattern
2. Cause and Effect: Mechanism and Explanation
3. Scale, Proportion, and Quantity
4. Systems and System Models
5. Energy and Matter: Flows, Cycles, and Conservation
6. Structure and Function
7. Stability and Change

C. DIMENSION 3: CORE AND COMPONENT SCIENCE IDEAS

1. PHYSICAL SCIENCE

a. CORE IDEA PHYSICAL SCIENCE 1: MATTER AND ITS INTERACTIONS

PS 1.A: STRUCTURE AND PROPERTIES OF MATTER

By the end of Grade 2: Different kinds of matter exist (e.g., wood, metal, water), and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties (e.g., visual, aural, textural), by its uses, and by whether it occurs naturally or is manufactured. Different properties are suited to different purposes. A great variety of objects can be built up from a small set of pieces (e.g., blocks, construction sets). Objects or samples of a substance can be weighed, and their size can be described and measured.

PS 1.B: CHEMICAL REACTIONS

By the end of Grade 2 – Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible (e.g., melting and freezing), and sometimes they are not (e.g., baking a cake, burning fuel).

b. CORE IDEA PHYSICAL SCIENCE 2: MOTION AND STABILITY: FORCES AND INTERACTIONS

PS 2.A: FORCES AND MOTION

By the end of Grade 2: Objects pull or push each other when they collide or are connected. Pushes and pulls can have different strengths and directions. Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. An object sliding on a surface or sitting on a slope experiences a pull due to a friction on the object due to the surface that opposes the object's motion.

PS 2.B: TYPES OF INTERACTIONS

By the end of Grade 2: When objects touch or collide, they push on one another and can change motion or shape.

PS. 2.C: STABILITY AND INSTABILITY IN PHYSICAL SYSTEMS

By the end of Grade 2: Whether an object stays still or moves often depends on the effects of multiple pushes and pulls on it (e.g., multiple players trying to pull an object in different directions). It is useful to investigate what pushes and pulls keep something in place (e.g., ball on a slope, a ladder leaning on a wall) as well as what makes something change or move.

c. CORE IDEA PHYSICAL SCIENCE 3: ENERGY

PS 3.B: CONSERVATION OF ENERGY AND ENERGY TRANSFER

By the end of Grade 2: Sunlight warms Earth's surface.

PS 3.C: RELATIONSHIP BETWEEN ENERGY AND FORCES

By the end of Grade 2: A bigger push or pull makes things go faster. Faster speeds during a collision can cause a bigger change in shape of the colliding objects.

PS 3.D: ENERGY IN CHEMICAL PROCESSES AND EVERYDAY LIFE

By the end of Grade 2: When two objects rub against each other, this interaction is called friction. Friction between two surfaces can warm of both of them (e.g., rubbing hands together). There are ways to reduce the friction between two objects.

d. CORE IDEA PHYSICAL SCIENCE 4: WAVES AND THEIR APPLICATIONS IN TECHNOLOGIES FOR INFORMATION TRANSFER

PS 4.B: ELECTROMAGNETIC RADIATION

By the end of Grade 2: Objects can be seen only when light is available to illuminate them. Very hot objects give off light (e.g., a fire, the sun). Some materials allow light to pass through them; others allow only some light through, and other block all the light and create a dark shadow on any surface beyond them (i.e., on the other side from the light source), where the light cannot reach. Mirrors and prisms can be used to redirect a light beam.

PS 4.C: INFORMATION TECHNOLOGIES AND INSTRUMENTATION

By the end of Grade 2: People use their senses to learn about the world around them. Their eyes detect light, their ears detect sound, and they can feel vibrations by touch. People also use a variety of devices to communicate (send and receive information) over long distances.

2. LIFE SCIENCES

a. CORE IDEA LIFE SCIENCE 1: FROM MOLECULES TO ORGANISMS: STRUCTURES AND PROCESSES

LS 1.A: STRUCTURE AND FUNCTION

By the end of Grade 2: All organisms have external parts. Different animals use their bodies in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive, grow, and produce more plants.

LS 1.B: GROWTH AND DEVELOPMENT OF ORGANISMS

By the end of Grade 2: Plants and animals have predictable characteristics at different stages of development. Plants and animals grow and change. Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive.

LS 1.C: ORGANIZATION FOR MATTER AND ENERGY FLOW IN ORGANISMS

By the end of Grade 2: All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow.

LS 1.D: INFORMATION PROCESSING

By the end of Grade 2: Animals have body parts that capture and convey different kinds of information needed for growth and survival – for example, eyes for light, ears for sound, and skin

for temperature or touch. Animals respond to these inputs with behaviors that help them survive (e.g., find food, run from a predator). Plants also respond to some external inputs (e.g., turn leaves toward the sun.

b. CORE IDEA LIFE SCIENCES 2: ECOSYSTEMS: INTERACTIONS, ENERGY, AND DYNAMICS

LS 2.A: INTERDEPENDENT RELATIONSHIPS IN ECOSYSTEMS

By the end of Grade 2: Animals depend on their surroundings to get what they need, including food, water, shelter, and a favorable temperature. Animals depend on plants and other animals for food. They use their senses to find food and water, and they use their body parts to gather, catch, eat, and chew the food. Plants depend on air, water, minerals (in the soil), and light to grow. Animals can move around, but plants cannot, and they depend on animals for pollination or to move their seed around. Different plants survive better in different setting because they have varied needs for water, minerals, and sunlight.

LS 2.B: CYCLES OF MATTER AND ENERGY TRANSFER IN ECOSYSTEMS

By the end of Grade 2: Organisms obtain the materials they need to grow and survive from the environment. Many of these materials come from organisms and are used again by other organisms.

LS 2.C: ECOSYSTEM DYNAMICS, FUNCTIONING, AND RESILIENCE

By the end of Grade 2: The places where plants and animals live often change, sometimes slowly and sometimes rapidly. When animals and plants get too hot or too cold, they may die. If they cannot find enough food, water, or air, they may die.

LS 2.D: SOCIAL INTERACTIONS AND GROUP BEHAVIOR

By the end of Grade 2: Being part of a group helps animals obtain food, defend themselves, and cope with changes. Groups may serve different functions and vary dramatically in size.

c. CORE IDEA LIFE SCIENCES 3: HEREDITY: INHERITANCE AND VARIATION OF TRAITS

LS 3.A: INHERITANCE OF TRAITS

By the end of Grade 2: Organisms have characteristics that can be similar or different. Young animals are very much, but not exactly, like their parents and also resemble other animals of the same kind. Plants also are very much, but not exactly, like their parents and resemble other plants of the same king.

d. CORE IDEA LIFE SCIENCE 4: BIOLOGICAL EVOLUTION: UNITY AND DIVERSITY

LS 4.C: ADAPTATION

By the end of Grade 2: Living things can survive only where their needs are met. If some places are too hot or too cold or have too little water or food, plants and animals may not be able to live there.

3. EARTH AND SPACE SCIENCES

a. CORE IDEA EARTH AND SPACE SCIENCES 1: EARTH'S PLACE IN THE UNIVERSE

EES1. A: THE UNIVERSE AND ITS STARS

By the end of Grade 2: Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. At night, one can see the light coming from many stars with the naked eye, but telescopes make it possible to see many more and to observe them and the moon and planets in greater detail.

b. CORE IDEA EARTH AND SPACE SCIENCES 2: EARTH'S SYSTEMS

ESS2. B: PLATE TECTONICS AND LARGE-SCALE SYSTEM INTERACTIONS

By the end of Grade 2: Rocks, soils, and sand are present in most areas where plants and animals live. There may also be rivers, streams, lakes, and ponds. Maps show where things are located. One can map the shapes and kinds of land and water in any area.

ESS2. D: WEATHER AND CLIMATE

By the end of Grade 2: Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time.

ESS2. E: BIOGEOLOGY

By the end of Grade 2: Plants and animals (including humans) depend on the land, water, and air to live and grow. They in turn can change their environment (e.g., the shape of land, the flow of water).

c. CORE IDEA EARTH AND SPACE SCIENCES 3: EARTH AND HUMAN ACTIVITY

ESS3. A: NATURAL RESOURCES

By the end of Grade 2: Living things need water, air, and resources from the land and they try to live in places that have the things they need. Humans use natural resources for everything they do: for example, they use soil and water to grow food, wood to burn to provide heat or to build shelters, and materials such as iron or copper extracted from Earth to make cooking pans.

d. ENGINEERING, TECHNOLOGY, AND APPLICATIONS OF SCIENCE

a. CORE IDEA ENGINEERING, TECHNOLOGY, AND APPLICATIONS OF SCIENCE: ENGINEERING DESIGN

ETS1. A: DEFINING AND DELIMITING AN ENGINEERING PROBLEM

By the end of Grade 2: A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions. Asking questions, making observations, and gathering information are helpful in thinking about problems. Before beginning to design a solution, it is important to clearly understand the problem.

ETS 1.B: DEVELOPING POSSIBLE SOLUTIONS

By the end of Grade 2: Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. To design something complicated, one may need to break the problem into parts and attend to each part separately but must then bring the parts together to test the overall plan.

ETS 1.C: OPTIMIZING THE DESIGN SOLUTION

By the end of Grade 2: Because there is always more than one possible solution to a problem, it is useful to compare designs, test them, and discuss their strengths and weaknesses.

b. CORE IDEA ENGINEERING, TECHNOLOGY, AND APPLICATIONS OF SCIENCE: LINKS AMONG ENGINEERING, TECHNOLOGY, SCIENCE, AND SOCIETY

ETS 2.A: INTERDEPENDENCE OF SCIENCE, ENGINEERING, AND TECHNOLOGY

By the end of Grade 2: People encounter questions about the natural world every day. There are many types of tools produced by engineering that can be used in science to help answer these questions through observation or measurement. Observations and measurements are also used in engineering to help test and refine design ideas.