Grade 4 North Dakota Alternate Assessment (NDAA 1)

SCIENCE - GRADE 4

Science Standard 1 Activities: Students understand the unifying concepts and processes of science.

Choose one activity for standard 1

Benchmark 1.1: Identify changes that are repetitive (e.g., seasons, day and night, water cycle)

1. Given two series of pictures, one with a repetitive change (e.g., day-night-day-night; cloud-rain- puddle-cloud-rain-puddle) and one with no repetition, TSW identify the sequence with the repetitive change (e.g., which pictures show something happening over and over again?)

2. Given a set of pictures (e.g., day-night-day-night; spring-summer-fall-winter), TSW put them into a sequence showing a repetitive change or cycle.

3. Given a sequence showing a repetitive change (e.g., day-night-day-_____; spring-summer-fall-winter-_____), TSW select a picture that completes the series or shows the next stage in the change.

Science Standard 2: Students use the process of science inquiry.

Use this Prescribed Anchor Item for standard two:

Benchmark 2.1 Select appropriate scientific tools (i.e., magnifiers, thermometers, rulers, balances) for investigations.

Activity: Given ten pictures of scientific tools (presented in sets of two) and five questions specific to the purpose of a tool, TSW match the correct tool to purpose, over four trials.

Materials: Print the pictures provided. Mount each picture on a half sheet of white construction paper. When finished, you will have ten pictures and five questions.

- **Teacher Data Sheet - place the answer for each question in the left hand side of the data box.**

Teacher behavior:

Present two picture cards at a time (according to directions) and say what is written for each question.

FOR EXAMPLE:

Place two cards in front of the student (one picture on the left and one on the right). Make sure the student can see both cards.

Show the first item to the student and say, **"This is a cup".**

Then show the second item to the student and say, **"This is a shaker"**

Then ask, "**Which is used to measure salt?"**

Question Directions:

Pair the cards in the following manner for each question. Do not mix the cards randomly. The correct answer is highlighted.

Questions 1: Which tool would you use to measure the temperature outside of the building?

Thermostat or thermometer

Question 2: Which tool would you use to count the legs on a butterfly?

Binoculars or magnifying glass

Question 3: Which tool is used to accurately measure wind direction?

Wind sock or wind turbine

Question 4: Which tool would you use to measure liquid in milliliters?

Kitchen measuring cup or lab beaker

Question 5: Which tool is used to identify how healthy human blood cells are?

Microscope or stethoscope

Student response: Student may respond in whatever means necessary to answer the question. For example: point, verbal response, eye gaze, yes/no, gesture, etc.

Record Data: Use the "NDAA 1 Data Chart for Teachers" to record the response for each set. You will present each one of the sets of five questions once during each trial/day/week and therefore have five student data responses to record. Four trials of five questions each will give you 20 responses.

SAMPLE	Day/Week 1	Day/Week 2	Day/Week 3	Day/Week 4
Item 1- thermometer				
Item 2- magnifying glass				
Item 3- wind sock				
Item 4- lab beaker				
Item 5-microscope				
# correct				
# possible	5	5	5	5

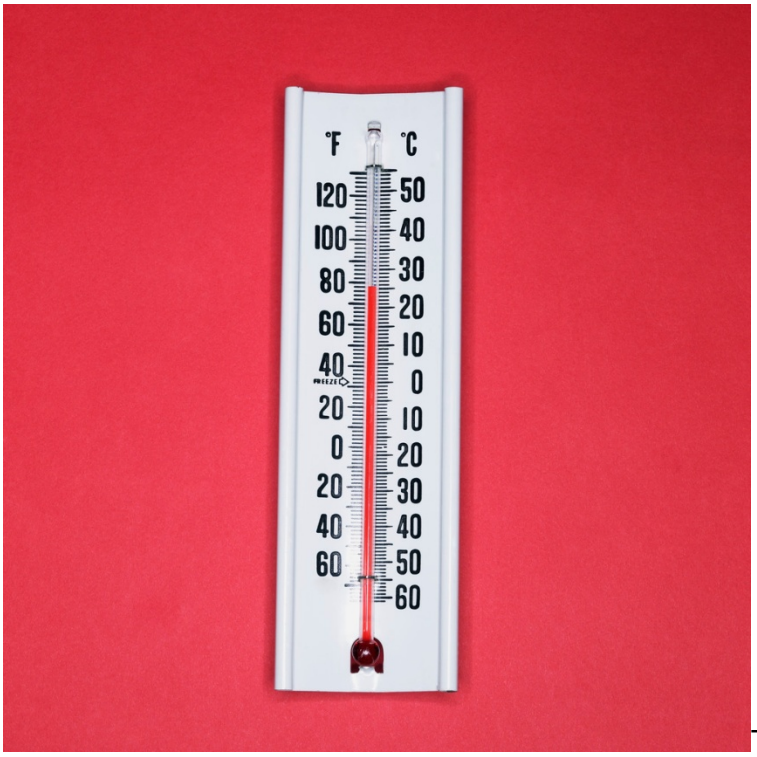
USE REGULAR DATA SHEET

*indicate with a **+ or -** if student answered a given item correctly*

***Secondary Indicators: You do not need to collect data on secondary indicators for this anchor item.**

***You do need to do the Teacher Validation questions and the Parent Validation Survey for this item.**

Note: All Pictures were taken from Microsoft Clip Art



Thermometer

Thermostat

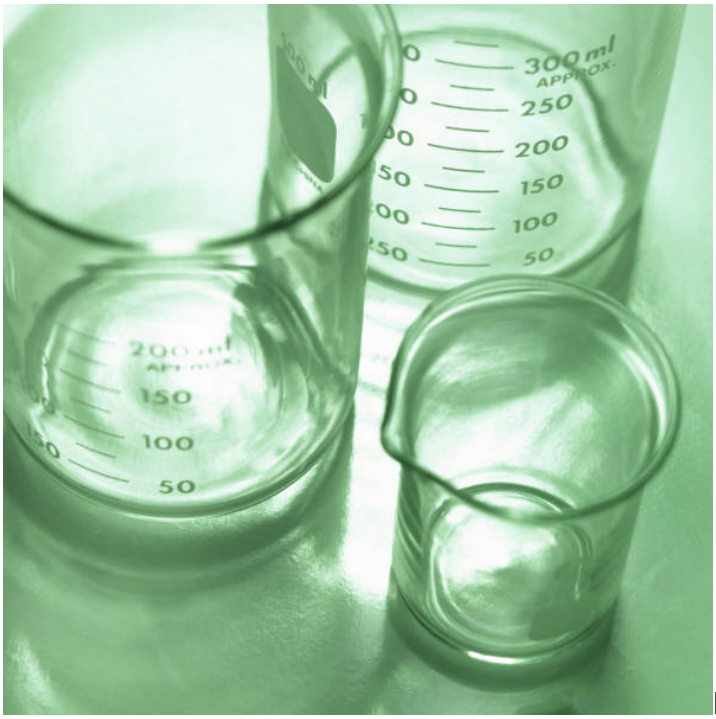
Binoculars

Magnifying glass

Wind Turbine

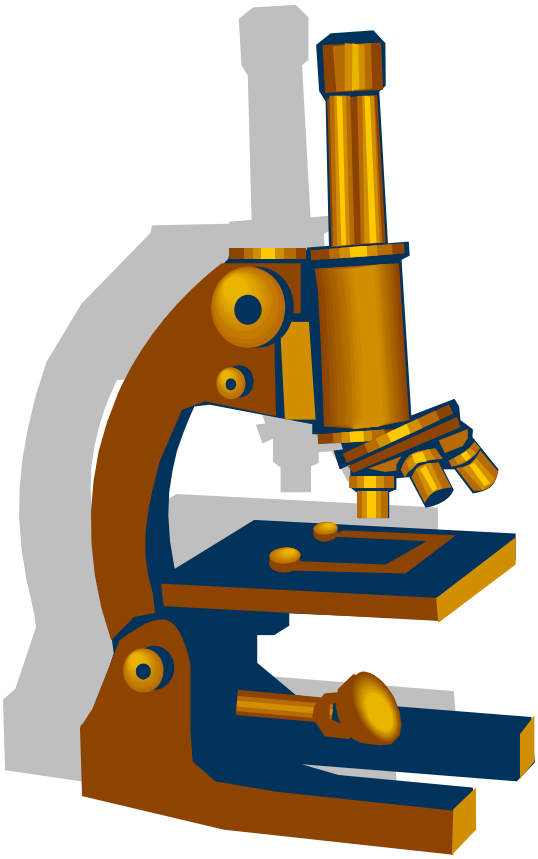
Wind Sock

Kitchen Measuring Cups



Lab Beakers

Stethoscope



Microscope

Science Standard 3 Activities: Students understand the basic concepts and principles of physical science.

Choose one activity for standard 3

Benchmark 3.1 Identify the physical properties of solids and liquids.

1. Given five items (2 solids, 3 liquids), TSW identify whether each is a liquid or a solid.

2. Given a liquid (in a container) and a solid, TSW describe properties of each one (e.g., it pours, it has no shape – liquid; it has a shape, it can't be pourer – solid)

3. Given two items (one a solid food and one a liquid drink), TSW indicate whether they would drink or eat the items, over five trials.

Benchmark 3.2 Identify a force as push or pull

4. Given five pictures of an object being moved, TSW indicate whether the item is being pushed or pulled.

5. Given a request to push or pull on object, TSW perform the requested action, over five trails.

6. Given one cause card and two effect cards, TSW indicate which effect corresponds with the cause card, over five trials.

7. Watching a person move an object across a flat surface, TSW indicate whether the movement is a push or pull action, over five trials.

Benchmark 3.3 Describe how magnets attract iron and repel or attract other magnets.

8. Given a refrigerator magnet and two surfaces (one magnetic and one that is not), TSW adhere the magnet to the magnetic surface, over five trials.

9. Given a magnet, and five different objects (some that will attract and some that won't attract), TSW correctly determine which item the magnet will attract.

10. Given a container with ten objects (five magnetic and five that are not), TSW identify whether each is magnetic or not magnetic, over five trials.

Benchmark 3.4 Explain how sound is produced by vibration.

11. Given a sound, TSW indicate whether the volume is loud or soft, over five trials.

12. After listening to five words (presented individually), TSW echo the words in matching volume (e.g. whisper, loud voice, etc.).

13. Given at least 4 examples of sound being produced (e.g., blowing a whistle, banging a drum, tap a foot, clap hands, rubbing hands, making a vocalization – LA-LA-LA), TSW identify what is moving to cause the sound (e.g., moving air, moving foot, moving stick, moving hand, moving tongue, etc.).

14. Given an example of sound being produced (e.g., blowing a whistle, banging a drum, tap a foot, clap hands, rubbing hands, making a vocalization – LA-LA-LA), TSW change the sound to be louder, softer, higher, or lower as directed by the teacher.

Benchmark 3.5 Describe how the path of light tends to maintain its direction and motion until it encounters an object.

15. When an individual shines a flashlight at five different objects, TSW indicate whether the light "passes through" the object. REVISE – combine idea with #2: When an individual shines a flashlight at five different objects, TSW indicate whether the light "bounces off of" the object (e.g., mirror), passes through the object (e.g., clear glass, water) or is absorbed by the object (e.g., dark or thick materials or stone, wood, etc.)

16. Given a flashlight, TSW reflect the light on a surface upon request, over five trials.

Science Standard 4 Activities: Students understand the basic concepts and principles of life science.

Choose one activity for standard 4

Benchmark 4.1 Identify parts of an organism that have specific functions (e.g., roots absorb water, heart pumps blood)

1. Given five body parts, TSW match the body part to its function (e.g., chest to breathing.)

2. Student will identify the parts of a plant and functions that help it to survive (roots –brings water and nutrients; leaves – make food; seeds – make more plants; flowers – attract insects for pollination).

Benchmark 4.2 Describe the life cycles of plants and animals (e.g., birds, mammals, grasses, trees, insects, flowers)

3. Given two pictures of an animal (one in the beginning of a life cycle and one near the end of the cycle), TSW match each beginning picture to its' corresponding end picture, over five trials.

4. Given ten items (five of which are living and five non-living), TSW identify which are living.

5. Given five life cycle sequence pictures for a plant and an animal, TSW put the pictures in the correct sequential order

6. Given two pictures (one baby animal, one adult), TSW match each baby to its corresponding adult picture, over five trials.

7. Given two pictures (one butterfly, one of another insect), TSW indicate which picture is the butterfly, over five trials.

8. Given two pictures (one plant, one not), TSW identify the plant picture, over five trials.

Benchmark 4.3 Identify the needs of living things (e.g., food, shelter, soil, space, water)

9. Shown two objects (one that we drink), TSW identify which object we drink, over five trials.

10. Shown two objects (one edible), TSW identify the edible object, over five trials.

11. Shown two pictures (one of his/her house) and asked "Where do you live?" TSW indicate the correct picture.

12. Shown five pictures of things an animal might need to survive (e.g., different shelters, different foods, water, air) TSW identify at least 3 needs for a given animal (e.g., bird-nest, worm/seeds, water, air).

Science Standard 5 Activities: Students understand the basic concepts and principles of earth and space science.

Choose one activity for standard 5

Benchmark 5.1 Identify weather conditions that can be measured (e.g., temperature, wind direction and speed, and precipitation).

1. Given two pictures (one of hot weather, one of cold weather), TSW indicate which is hot or cold upon request, over five trials.

2. After observing and using several different tools for measuring weather over a period of time (e.g., measuring temperature, wind direction, and precipitation for one week), TSW match the correct instrument with the weather condition it measures: temperature-thermometer; wind direction – wind sock or weather vane; precipitation – rain gauge (e.g., what tool did we use to find out how much rain we got on Tuesday? What tool did we use to find out what the temperature was each day last week?)

Benchmark 5.2 Identify different uses (e.g., building materials, sources of fuel) of Earth's materials based on their properties.

3. TSW sort at least 4 samples of earth materials (e.g., 4 different soils, rocks/minerals, wood, or metals samples) by physical features (e.g., dark to light color, rough to smooth texture, hard to soft, luster if rocks/minerals).

4. TSW match earth materials (soils, rocks, woods, metals) with something it is used for (e.g., wood could be used for heating, building, making paper; soils can be used for planting, clay for making pottery; metals for building, jewelry, coins, vehicles).

Benchmark 5.3 Identify ways (e.g. wind, rain, people) that larger rocks break down into smaller rocks.

5. After being shown videos or demonstrations of ways that rocks are broken down into smaller rocks (large machines crushing rocks, hitting rock with a hammer while wearing safety goggles, rocks falling from high cliff and splitting, tree roots growing into a rock and slowly splitting it, water and waves wearing down rocks) and some that no breaking down is happening (e.g., large machine just moving a rock, rock sitting in a field, dropping a rock from 3 feet high), TSW match pictures that show whether rocks will become smaller or rocks will stay the same size as a result. (These could be cause-effect cards.)

Benchmark 5.4 Identify the properties of soil (e.g. color, texture, ability to support plant growth, capacity to retain water)

6. Given cups of different type of soil (e.g. rocky, sandy, clay, wet, dry), TSW matches descriptions of each soil after observing (touching, using hand lens), over five trials

Benchmark 5.5 Explain how stars are like the sun, but because they are at a great distance, they look like small points of light.
NOTE: actual pictures of the sun, moon, and stars should be used – not simple shapes like circles for all planets. For example, stars should be from night sky views, not stickers or 5-pointed stars.

7. Given actual pictures/photos of a day sky and night sky, TSW identifies the sun, moon, and stars in the pictures.

8. Given pictures or picture symbols for the sun, moon, and stars, TSW identify which is closest to the earth to farthest away (e.g., which object is closest to the earth moon? Which is farther away the sun or stars?).

Science Standard 6 Activities: Students understand relations between science and technology.

Choose one activity for standard 6

Benchmark 6.1 Identify ways technology (e.g., zippers, Velcro, measuring instruments, computers) can be used to solve problems at home and school.

1. TSW identifies or matches at least 5 uses of technology in the school environment with what it helps us to do (e.g., anything with a handle/lever – hammer, can opener, door knob - help us to lift, push, pry off a lid, or add force; a ramp helps us to go up in a wheelchair.)

2. TSW selects from at least 5 tools or technology in the school environment to help with a specific task (e.g., what would help us to move a heavy object – wheel barrow, shopping cart, wagon; Keep papers together – paper clip, stapler; tell us when it is time to eat lunch – watch, clock, timer; take pictures of our experiment –digital camera; take pictures of something that is moving – video camera.)