

North Dakota Alternate Assessment 1 (NDAA1) **SCIENCE - GRADE 4**

For students with significant cognitive disabilities assessed against alternate achievement standards



Picture from Microsoft Clip Art



NORTH DAKOTA STATE ASSESSMENT PROGRAM

North Dakota Department of Public Instruction
Kirsten Baesler, State Superintendent

Welcome to the 2016-17 North Dakota Alternate Assessment 1 for Science. Science is assessed in grade 4, 8, and 11 in North Dakota.

The science test includes six assessment activities based on each of the six North Dakota State Science Content Standards. These six activities will range in complexity from less complex, to more complex, and most complex. All students will be tested on the same six items. Each will include the opportunity to first teach the concept and then to assess it.

Materials are provided for each item. Separate Item Data Sheets are provided for each of the six items. These Item Data Sheets are to be used only for the item specified. Each contains the questions, directions, and data collection space for the item.

Once all six of these Data Sheets are completed the data can be entered into the online NDAA1 portal. You will be entering each response (correct or incorrect).

To start this test:

You will need to print this document on a color printer (if possible).

You may want to mount the pictures onto a half sheet of white or neutral construction paper.

Test Item # 1

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

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

Suggested Instructional Activities (before testing)

Students need to learn to recognize and extend simple repeating patterns. Students need to understand what a repetitive change is and be able to recognize examples and non-examples of naturally occurring changes. Students must be able to recognize and understand differences between activities/events associated with: day and night and the four seasons. Teach the concepts before testing.

Test Item: Given sets of pictures showing repetitive change, TSW answer questions about night and day and seasons including the correct sequence of each repetitive change requested.

Materials:

Print the pictures in color and mount them separately on a half sheet of white or neutral construction paper.

Use the Data Sheet for Item #1(provided).

Teacher directions:

1. Pair the cards as directed on the Data Sheet Questions.
2. Present the pictures in the order and pair as directed in the questions.
3. Collect data on each of the ten questions.
4. Total the correct answers at the bottom.
5. Keep data sheet to enter online when all test items are complete.

The student may respond in whatever means necessary to answer each question (e.g., point, verbal response, eye gaze, yes/no, gesture, communication board) as appropriate to the student's communication mode.



Night 1



Day 1

Note: All pictures were taken from Microsoft Clip Art



Fall 1



Winter 1



Night 2



Day 2



Summer 1



Fall 2



Night 3 &

Winter 2



Spring 1

Data Sheet Directions:

"Place" means place the item or card on the table or board in front of student.

"Show" means hold the picture/item up as a choice (pairs of two at a time).

Yellow highlight means it is the correct answer.

Indicate + (plus) for correct. Indicate - (minus) for incorrect answer.

The student may respond in whatever means necessary to answer each question (e.g., point, verbal response, eye gaze, yes/no, gesture, communication board) as appropriate to the student's communication mode.

Data Sheet for Item # 1

Name _____ Indicate + for correct, - for incorrect

Question Content	DATA
1. Place " Night 1 " on table. Say, "Which <u>comes after night</u> ?" Show " Day 1 and Night 2 "	
2. Place " Winter 1, Spring 1, Summer 1, _____, " Say, "Which <u>season comes next</u> ?" Show " Fall 1 and Winter 2 "	
3. Place " Day 1, Night 1, Day 2 " . Say, " <u>what comes next</u> in the sequence?" Show " Night 2 and Winter 1 "	
4. Say, "Which season <u>comes before</u> fall?" Show " Summer 1 and Winter 2 "	
5. Say, "In which season do <u>things start to grow</u> after a cold winter?" Show " Spring 1 and Day 1 "	
6. Say, "In which season do the <u>leaves die and fall off</u> of the trees?" Show " Winter 1 and Fall 2 "	
7. Say, "Which season comes <u>after fall</u> ?" Show " Winter 1 and Fall 2 "	
8. Show " Night 2 and Night 3 " and say, "Which shows a <u>winter night</u> ?"	
9. Place " Winter 2, _____, Summer 1, fall 1 " and say, "Which season <u>is missing</u> ?" Show " Fall 2 and Spring 1 "	
10 . . Show " Fall 2 and Winter 2 " and say, "Which is the <u>coldest season</u> of the year?"	
Total Correct Answers	Total

Standard 2: Students use the process of science inquiry.

Benchmark 2.1 Select appropriate scientific tools (i.e. magnifiers, thermometers, rulers and meter sticks, balance scales, timers) for investigations.

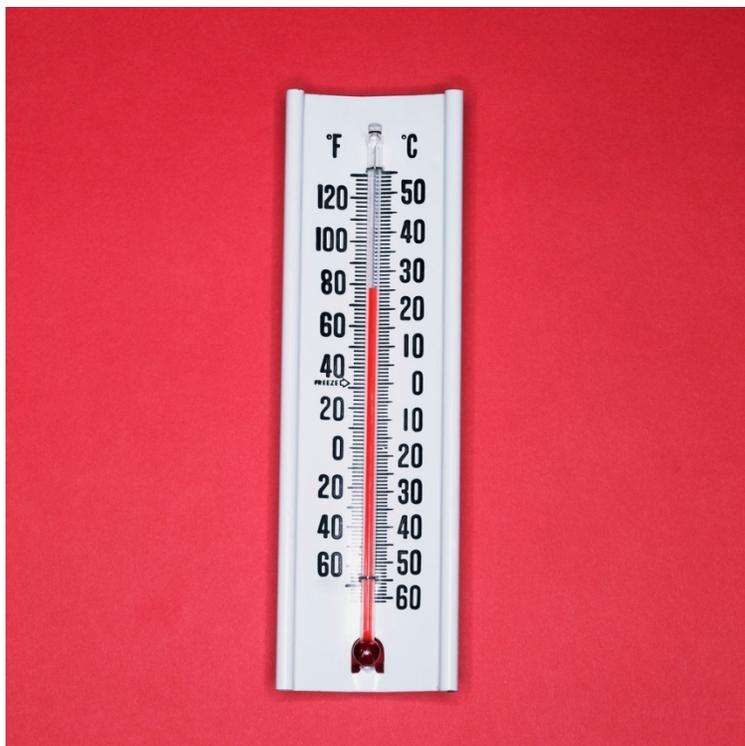
Suggested Instructional Activities (before testing)

Students who have been using science tools in the classroom will do much better on this assessment task than those who have not had opportunities to do so. Teachers are encouraged to demonstrate the use of tools and support students' use of tools to collect data for science investigations long before the beginning of fourth grade. Many of the tools used in science investigations are also used in mathematics learning and can be reinforced there as well.

Test Item: The student will identify grade-appropriate science tools by name. Given a specific science inquiry task, TSW choose the correct scientific tool for each requested purpose.

The student may respond in whatever means necessary to answer each question (e.g., point, verbal response, eye gaze, yes/no, gesture, communication board) as appropriate to the student's communication mode.

Materials: Print the pictures provided. Mount each picture on a half sheet of white or neutral construction paper.



Thermometer



Thermostat



Binoculars



Magnifying glass



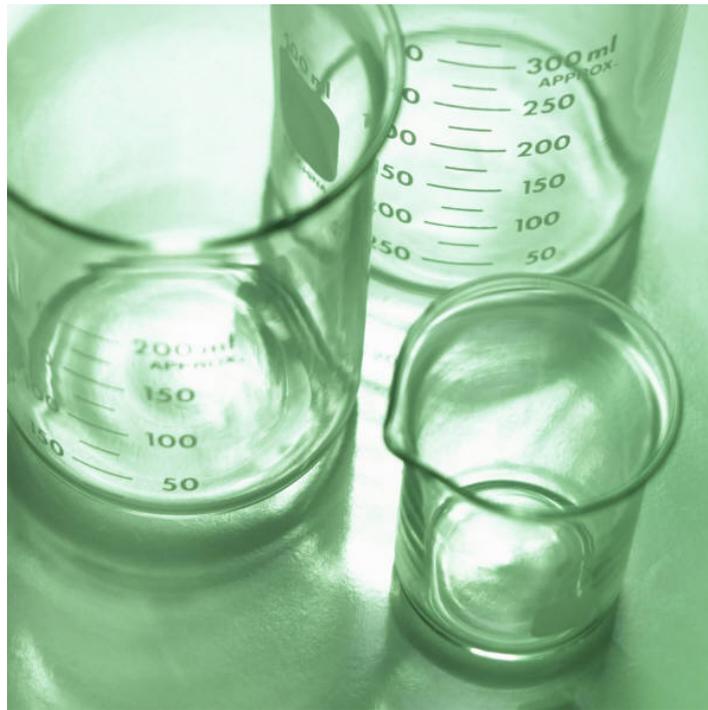
Wind Turbine



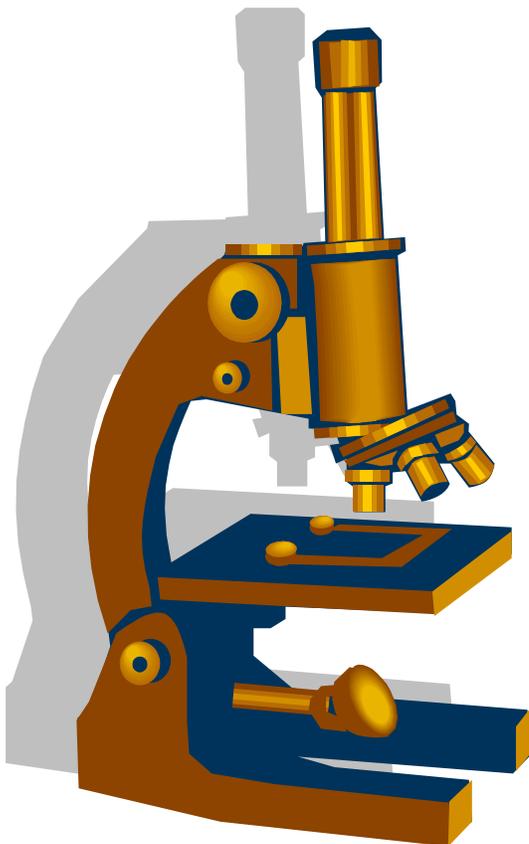
Wind Sock



Kitchen Measuring Cups



Lab Beakers



Microscope



Stethoscope

Teacher direction:

1. Print the pictures provided.
2. Print the Data Sheet for this item.
3. Mount each picture on a half sheet of white or neutral construction paper.

Specific QUESTION Directions:

Pair the cards according to the directions in the question (on Data Sheet). Do not mix the cards randomly. The correct answer is highlighted.

The student may respond in whatever means necessary to answer each question (e.g., point, verbal response, eye gaze, yes/no, gesture, communication board) as appropriate to the student's communication mode

DATA SHEET for Item # 2

Name _____

Question Text	DATA
1. Show Thermostat and Thermometer . Ask, "Which is a picture of a thermostat?"	
2. Show Thermostat and Thermometer . Ask, " Which tool would you use to measure the temperature outside of the building?"	
3. Show Wind sock and Wind turbine . Say, "Which is a picture of a wind turbine?"	
4. Show Wind sock and Wind turbine . Say, "Which is a picture of a wind sock?"	
5. Show Wind sock and Wind turbine . Say, "Which tool is used to measure wind direction?"	
6. Show Kitchen Measuring cups and Lab breakers . Ask, " Which would be used to measure ingredients to make cookies?"	
7. Show Kitchen Measuring cups and Lab breakers . Say, " Which is a picture of lab beakers ?"	
8. Show Kitchen measuring cups and Lab beakers ? Say, "Which tool would you use to measure liquid in very tiny amounts (such as milliliters)?"	
9. Show Binoculars and Magnifying glass . Ask, " Which tool would you use to see the legs on a butterfly?"	
10. Show Microscope and Stethoscope . Say, "Which tool is used to look at cells that the human eye cannot see?"	
TOTAL All <u>Correct Answers</u>	Total

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

Benchmark 3.1: Identify the physical properties of solids and liquids.

Suggested Instructional Activities for 3.1 (before testing)

Students find examples of solids and liquids and sort them as solid-liquid. Students investigate what happens when solids and liquids are poured into different shaped containers – does the shape of the solid or liquid change when poured? Students learn words to describe different solids and liquids (wet, dry, soft, hard, square, circle, round, etc.). Observable properties or features of solids (all solids have a distinct shape, do not change shape) and liquids (flow, change shape/take the shape of the container they are in, can soak into things, make things wet, are fluids).

Test Item: When presented with a series of items (solids and liquids), TSW identify whether the item is a solid or liquid. TSW also identify a key feature (does it change shape) as requested by the teacher with each item demonstrated.

The student may respond in whatever means necessary to answer each question (e.g., point, verbal response, eye gaze, yes/no, gesture, communication board) as appropriate to the student's communication mode

Materials Needed for this item:

There are no pictures to use for this activity. Real objects should be used.

- Suggested solid items: chair, pillow, cushion, nerf ball, small shape blocks or counters, dried macaroni noodles, book, can, pencil, crayons, dry cereal, etc.
- Suggested liquid items: water, juice, milk, soda, Kool-Aid
- Containers: pitcher, glass, cake pan, measuring cup, etc.

Ideas for teaching solids and liquids:

Part 1: The teacher will first present a series of objects and **ask:** is this a solid or liquid?

Part 2: Then the teacher will place many small solid objects (crayons, dried macaroni noodles) into a container (e.g., plastic pitcher) and show the student what they look like, **saying:** “look at the shape of these crayons/macaroni now.”

Then the teacher will pour the objects into a container of a different shape (low narrow cake pan) and **ask:** Did these crayons/macaroni change their shape when I poured them?

The teacher can repeat the pouring a second time if needed: “let’s watch this again.”

The teacher can give the correct answers **ONLY** during teaching activities. **The teacher cannot give answers during testing.**

This will be done with two different solids and then using two different colored liquids.

Ask: did the (milk/juice) change its shape when I poured it into a new container?

The teacher can repeat the pouring a second time if needed: “let’s watch this again.”

Be sure the containers are two different shapes: for example, from tall pitcher to low flat pan.

Follow the directions on the Data Sheet for Item #3 for testing.

Note: All pictures were taken from Microsoft Clip Art

Data Sheet for Item #3

Name: _____

Questions	Data
1. Present solid object and ask: is this a solid or a liquid?	
2. Present liquid and ask: is this a solid or a liquid?	
3. Present liquid and ask: is this a solid or a liquid?	
4. Present solid object and ask: is this a solid or a liquid?	
5. Pour <u>small solid objects from one container to another container</u> (cake pan to cup) and ask: "Did these objects change their shape when I poured them?" NO	
6. Pour <u>small solid objects from one container to another container</u> (pitcher to glass) and ask: "Did these objects change their shape when I poured them?" NO	
7. Pour <u>a liquid from one container to another container</u> (pitcher to measuring cup) of a different shape and ask: Did the (milk/juice) change its shape when I poured it into a new container? YES	
8. Pour <u>a liquid from one container to another container</u> (glass to cake pan)of a different shape and ask: Did the (milk/juice) change its shape when I poured it into a new container? YES	
9. Pour <u>small solid objects from one container to another container</u> (glass to cake pan) and ask: Did these objects change their shape when I poured them? NO	
10. Predict : Show a cup of liquid and a glass and ask, "If I pour this liquid from this cup into this glass, do you think the liquid will change its shape?" Yes	
TOTAL All Correct Answers	Total

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

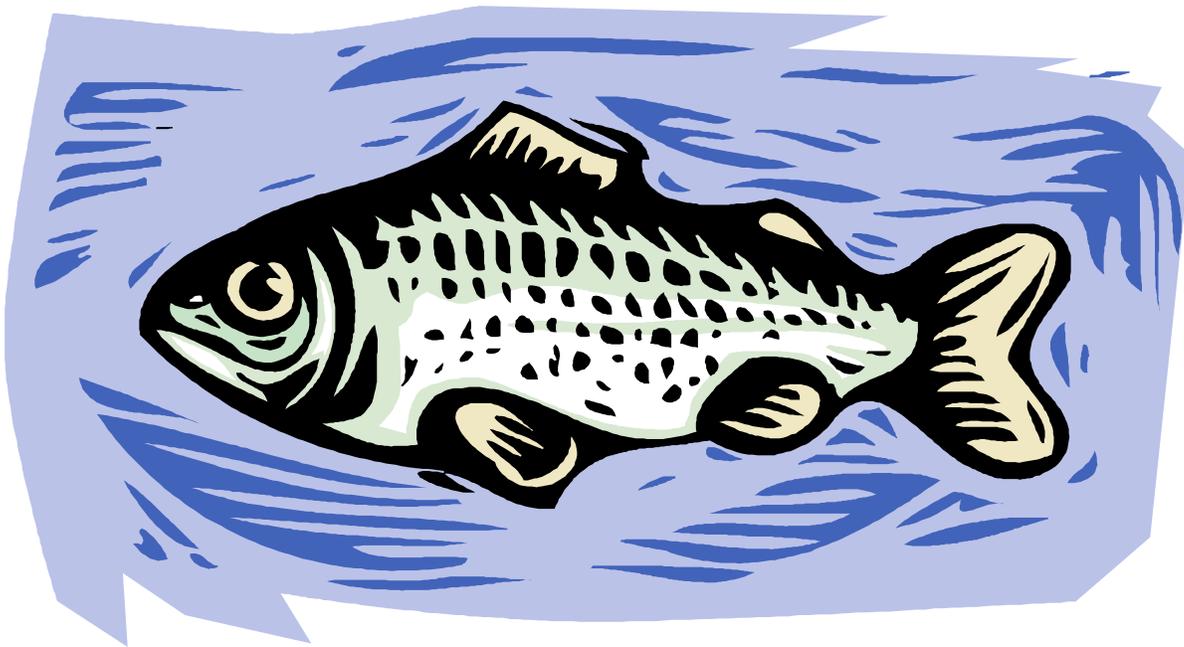
Benchmark 4.1: Identify parts of an organism that have specific functions (e.g., roots absorb water, heart pumps blood)

Suggested Instructional Activities (before testing)

Students learn to recognize physical features of a variety of living things and their specific functions to help the organism survive. They can start with observable external features (types of feet, feathers, roots, etc.) and later learn about internal features (heart, lungs, bones, etc.).

Test Item: Given bird, fish, and human internal and external parts, TSW match the part to its function for each organism.

The student may respond in whatever means necessary to answer each question (e.g., point, verbal response, eye gaze, yes/no, gesture, communication board) as appropriate to the student's communication mode.



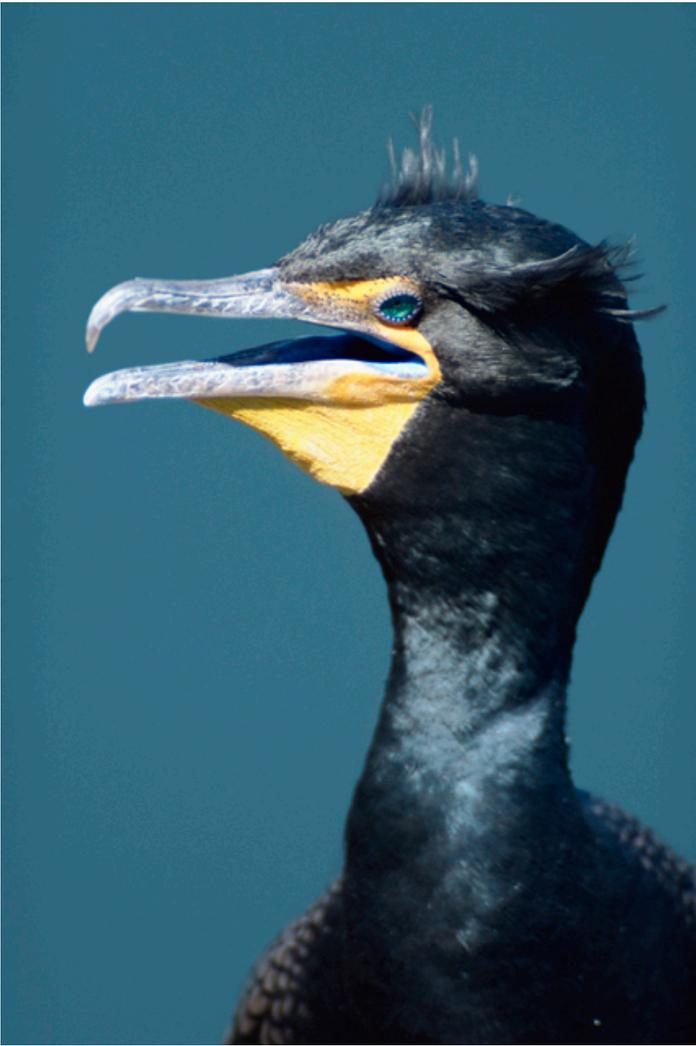
Fish - fins gills eye mouth



Feather



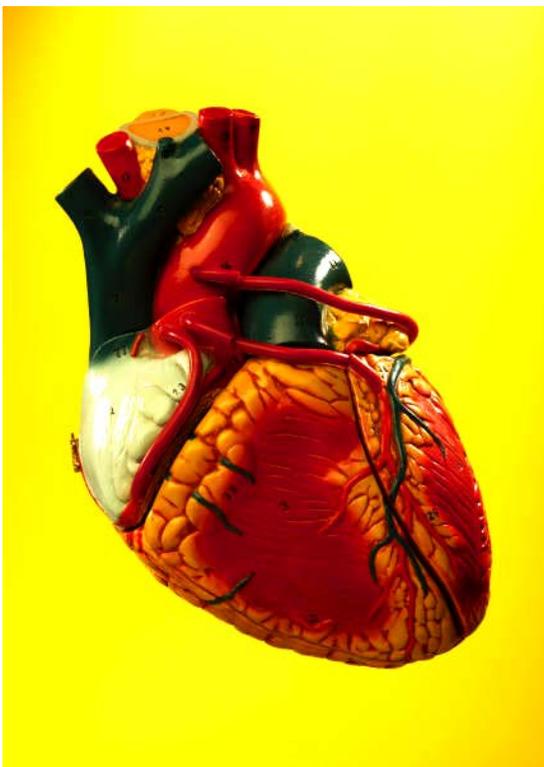
Eyes



Beak



Lungs



Heart



Hand

Note: All pictures were taken from Microsoft Clip Art



Feet



Mouth



Goose

Data Sheet for Item #4

Name: _____

Correct Answers + Incorrect Answers -

Questions	Data
1. Look at the picture of the Fish . Does the fish breathe through its fins or gills ?	
2. Show Goose and say, "Look at the Goose's webbed feet. Do his webbed feet help him to eat or to swim ?"	
3. What do birds use to eat? Show Mouth and Beak	
4. What internal organ do humans use to breathe? Show Heart and Lungs .	
5. What pumps blood in living things? Show Heart and Lungs .	
6. What keeps birds dry? Show Beak and Feather	
7. What does a fish use to move from place to place? Show Gills and Tail	
8. What do humans use to move from one place to another? Show Hands and Feet	
9. Humans eat and breathe through this part. Show Hand and Mouth	
10. What do all animals and humans use to see? Show Eyes and Heart	
TOTAL All Correct Answers	Total

Note: All pictures were taken from Microsoft Clip Art

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

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

Suggested Instructional Activities (before testing)

Students learn to recognize how to measure weather conditions using scientific tools.

Observing, measuring, and reporting on daily weather conditions, and using the Internet, resource books, and the weather channel on TV to explore weather in other places are important learning experiences for all elementary students. Weather explorations can be taught when teaching students to use tools (e.g., thermometers to measure and compare temperatures).

The student may respond in whatever means necessary to answer each question (e.g., point, verbal response, eye gaze, yes/no, gesture, communication board) as appropriate to the student's communication mode.

Test Item: When given scenes of different weather conditions and non-weather conditions, TSW identify what weather condition can be measured and match them with correct heading: temperature, precipitation, wind speed or direction, or not a weather condition.

Materials:

Print pictures provided and pair the items according to the directions on the Data Sheet for this item.



Lightening



Night

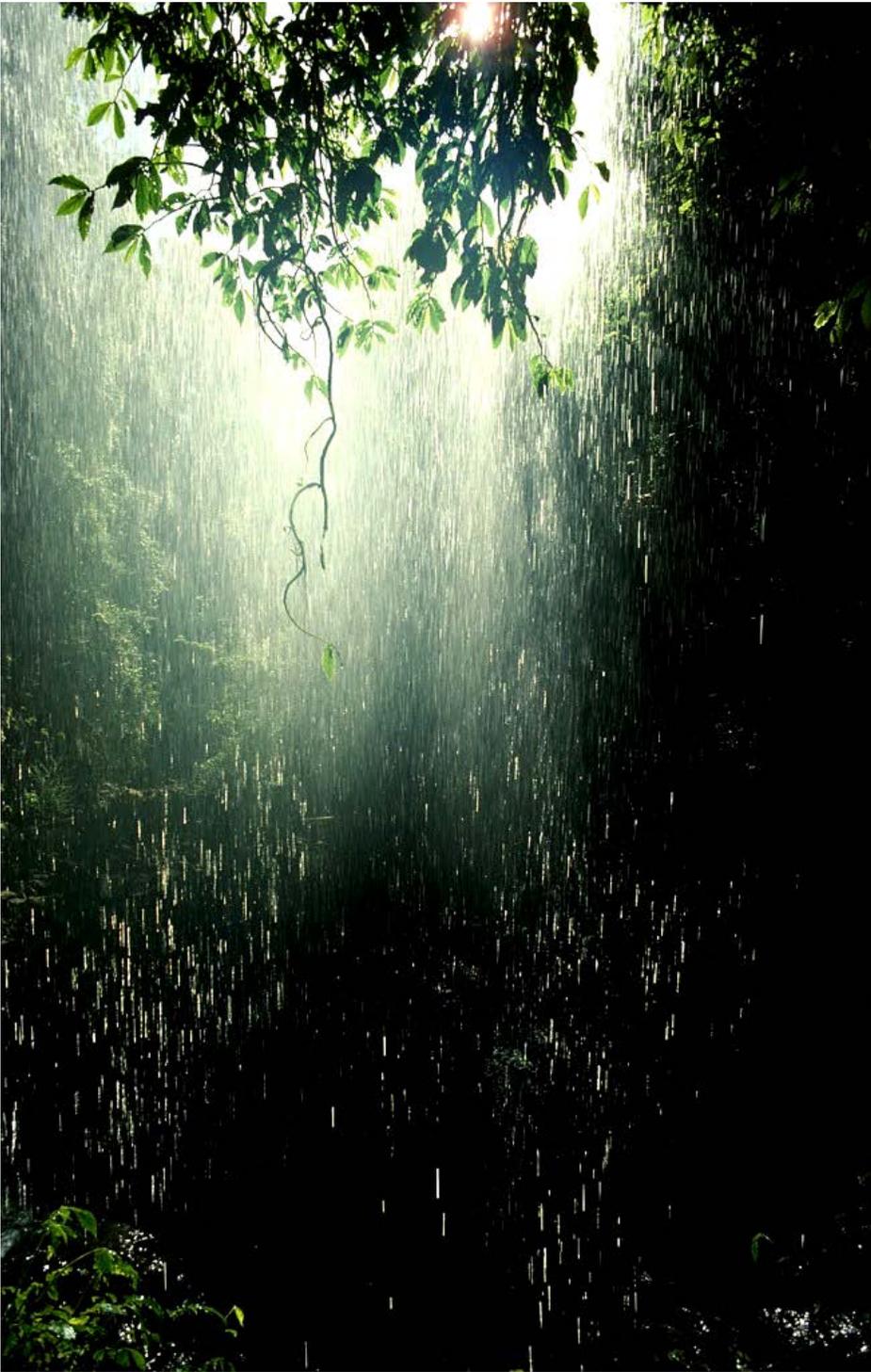


Desert Heat

Note: All pictures were taken from Microsoft Clip Art



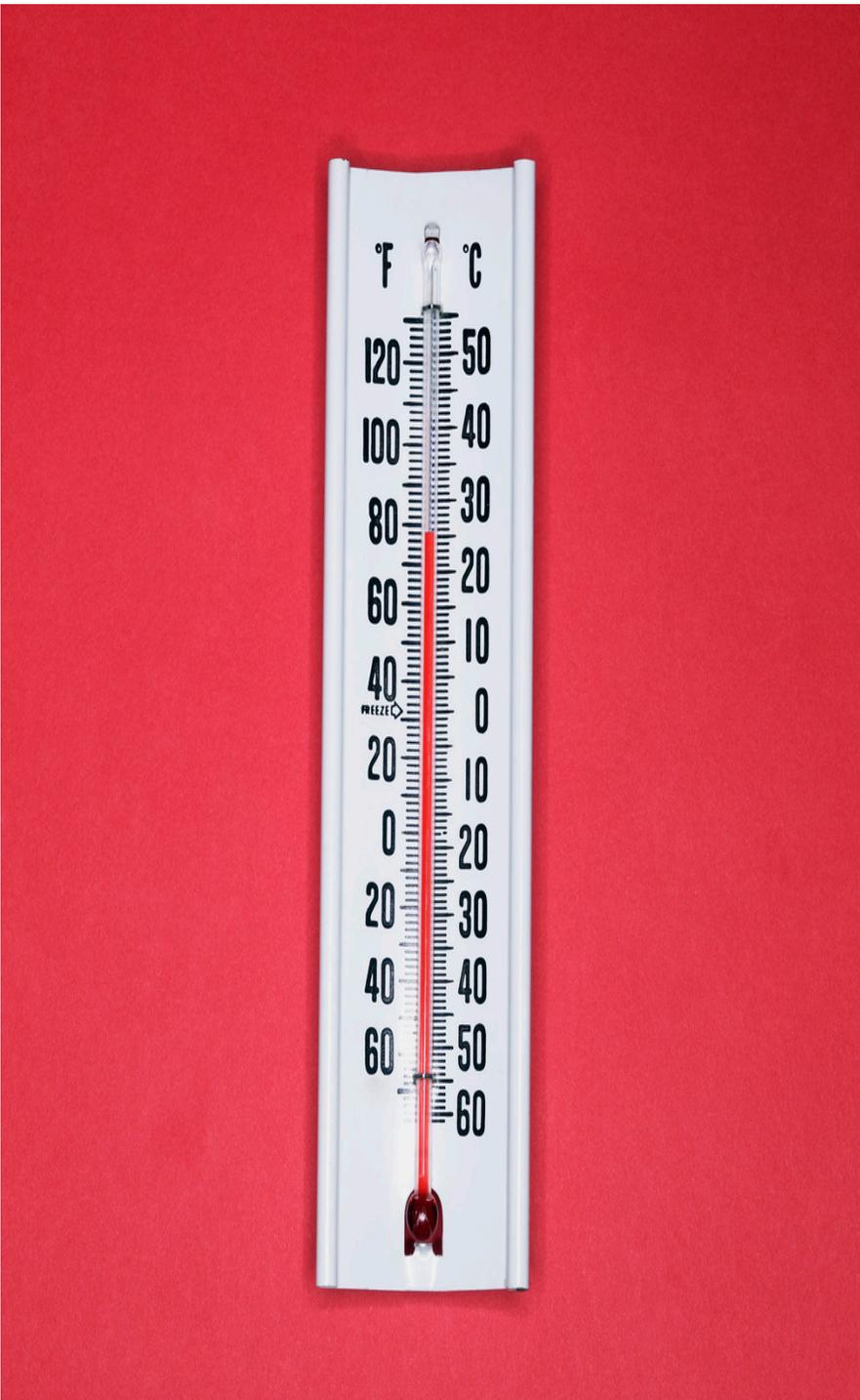
Sunlight Shining through the Clouds



Rain



Snow



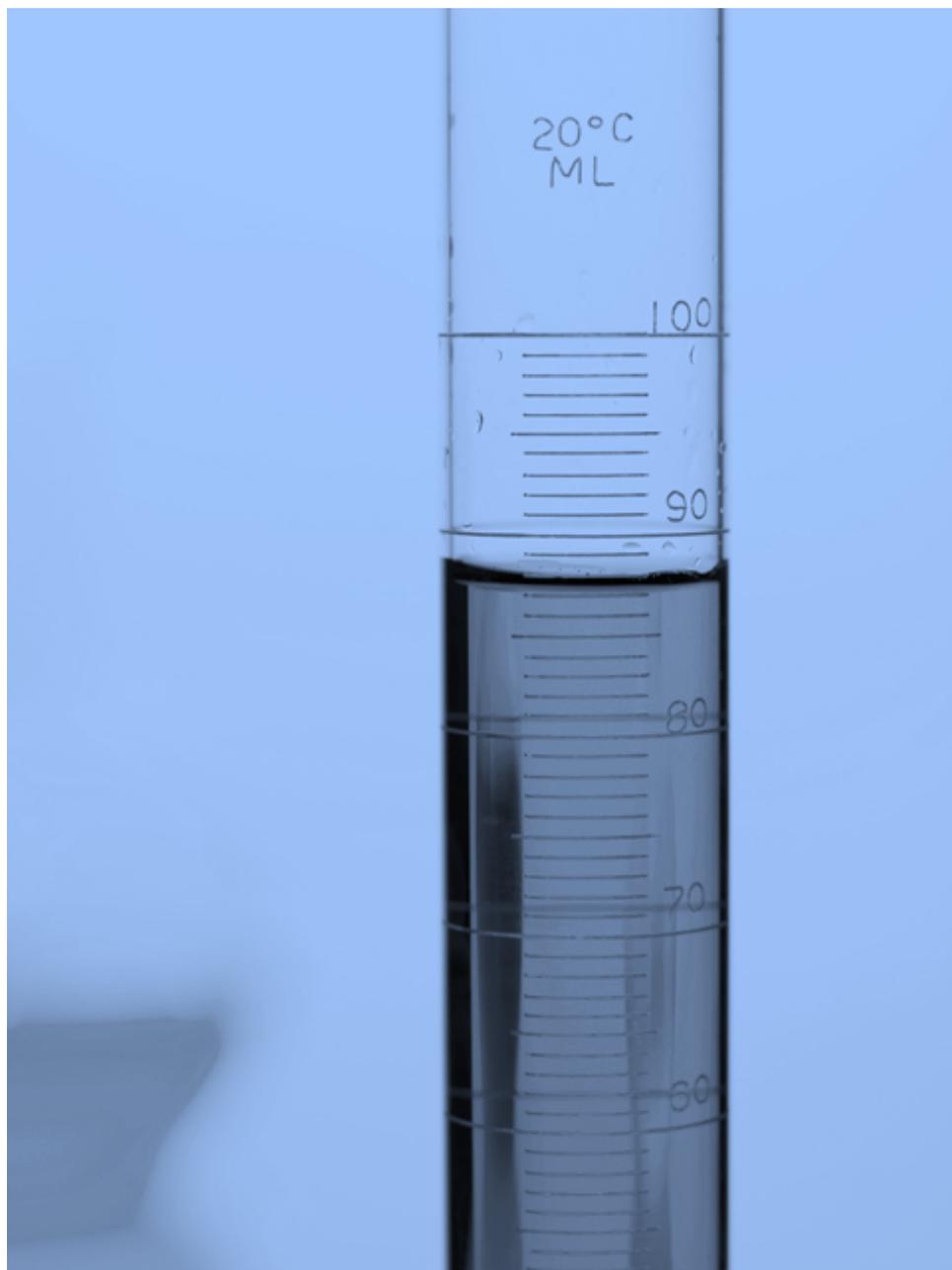
Thermometer



Wind Sock



Hot Air Balloon



Rain
Gauge

Data Sheet for Item # 5

Name _____

Correct Answers + Incorrect Answers -

Question Content	DATA
1. Look at the picture of Rain . Can rain be measured? YES	
2. Look at the picture of Night . Can night be measured? NO	
3. Look at the picture of Snow . Can snow be measured? YES	
4. Show Thermometer and Rain Gauge . Say, "Which tool would be used to measure rain fall?"	
5. Look at the picture of Sunlight Shining through the Clouds . Can this be measured? NO	
6. Show Hot Air Balloon and Wind sock . Ask, "which of these is used to measure wind direction?"	
7. Look at the picture of Lightening . Can lightening be measured? NO	
8. Look at the picture of the Desert heat . Can heat be measured? Yes	
9. Show the Wind sock and Thermometer . Ask, "Which would you use to measure heat?"	
10. Can wind speed be measured? YES	
TOTAL Correct Answers	Total

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

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

Suggested Instructional Activities (before testing)

Students recognize a variety of common tools and their uses. Students can compare tools that do the same task (e.g., writing a message with a pencil and writing a message with a computer or text message). Students need to understand that tools are invented and used to make work easier and new technology is always being used to invent new tools. Students could create simple visual time lines to show earlier and later inventions that do the same thing.

Test Item: When given descriptions of how tools have been used to solve a problem or make a task at home or school more efficient, TSW select an appropriate tool to fit the description.

The student may respond in whatever means necessary to answer each question (e.g., point, verbal response, eye gaze, yes/no, gesture, communication board) as appropriate to the student's communication mode.

Materials: Pictures, Data Sheet and questions.



Telephone



Computer



Stop watch



Calculator



Tape



Stapler



Microwave



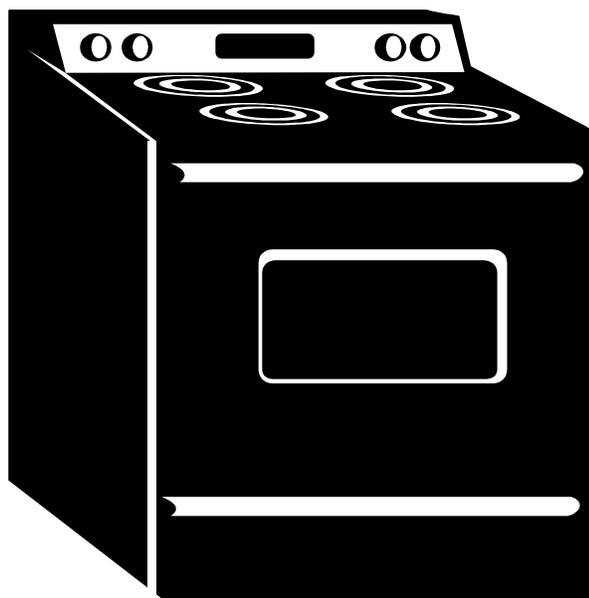
MP3 Player



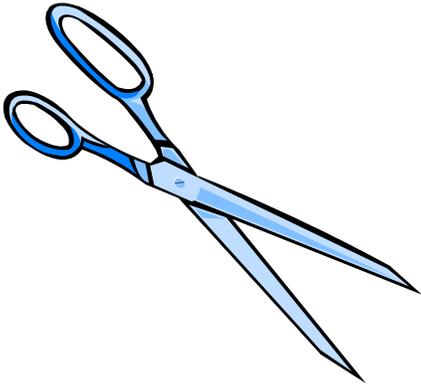
Boom-box



Grill



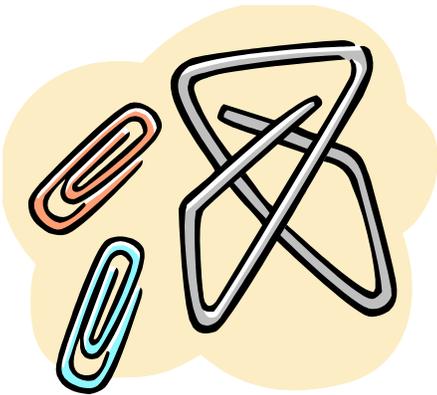
Stove



Scissor



Pencil



Paper Clips



Safety pins

The student may respond in whatever means necessary to answer each question (e.g., point, verbal response, eye gaze, yes/no, gesture, communication board) as appropriate to the student's communication mode

Data Sheet for Item # 6 Name: _____

Correct Answers + Incorrect Answers -

Questions	Data
1. What would you use to get help quickly? Show Telephone and Computer .	
2. What tool would be used to determine how fast someone runs a race? Show Calculator and Stop watch .	
3. You have to attach ten sheets of paper together so you don't lose any of the pages. Which would you use? Show Tape and Stapler .	
4. You have to be at a ball game in half an hour and you have to eat first. Should you use the Stove or the Microwave to cook your macaroni and cheese?	
5. If you wanted to listen to music while going for a walk, which would work best? Show Boom-box and MP3 Player .	
6. You need to wrap a present. Which would you use to get the job done? Show Stapler and Tape dispenser.	
7. You are going to a picnic in the park. What will be used to cook the meat? Show Stove and Grill .	
8. If you want to send an email to a friend, which would you use? Show Computer and Telephone .	
9. What would be most helpful in opening a bag of chips? Show Scissor and Pencil .	
10. If you ripped your shirt, which would work best to close the rip? Show Paper clips and Safety pins .	
TOTAL All Correct Answers	Total

No additional verbal, gestural, or physical prompting is allowed beyond telling the student what each item is.

When you have completed all six test items for science, go to the NDAA1 online assessment and enter the data totals for each of the six items. Submit the results.

Note: All pictures were taken from Microsoft Clip Art