CURRICULUM GUIDE FOR

Senses

(Based on Insights *Senses* and AIMS *Sense-able Science*)

Wallingford Public Schools
First Grade
Science

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UNIT SUMMARY

During this unit, students experience a variety of learning activities that encourage them to become aware of how to use their senses to carefully observe and describe objects. Students will develop rich vocabulary as they look, touch, listen, smell, and taste a variety of materials. Students will describe details, compare and contrast, sort objects, and make predictions using their senses. Tools that extend the use of the senses, such as hand lenses, Braille, and hearing aids will explored.

STAGE 1- STANDARDS/GOALS

What should students understand, know, and be able to do? Stage one identifies the desired results of the unit including the related state science content standards and expected performances, enduring understandings, essential questions, knowledge and skills.

Enduring Understandings *Insights earned from exploring generalizations via the essential questions (Students will understand THAT…) K-12 enduring understandings are those understandings that should be developed over time, they are not expected to be mastered over one unit or one year.*	**Essential Questions** *Inquiry used to explore generalizations*
Overarching Enduring Understandings: • Science is the method of observation and investigation used to understand our world. (K-12) • Inquiry is the integration of process skills, the application of scientific content, and critical thinking to solve problems. (K-12) *Unit Specific Enduring Understandings:* • Senses provide information about the environment. • Specific body parts are used to collect information about the environment. • Objects or events can be identified and described by the way they look, feel, smell, taste, and by the sounds they make. • Objects can be sorted, compared, and classified using the senses. • Specific tools can extend the senses (Braille, hearing aid, eye glasses, etc.)	Some or all of these questions can be used for this unit: • How is inquiry used to investigate the answers to questions we pose? • How does your body help you to identify and describe your environment? • What can you learn about your environment using your senses? • What experiences do you associate with a certain sense (taste, going to the movies, parties, etc)? • How do you use your senses to identify, sort and classify objects in your environment? • Why are our five senses so important to us? • How would you describe an object or an event using your five senses? • What would your life be like if you did not have all of your five senses? What adaptive tools would you need to use? • Related to the five senses, how do you use what you already know to explain unfamiliar objects or events? Example: Use background knowledge to describe a scene in a picture, i.e.: man landing on the moon.

Knowledge and Skills

What students are expected to know and be able to do

The knowledge and skills in this section have been extracted from Wallingford's K-5 Science Scope and Sequence.

Knowledge

K1. Identify the five senses – seeing, hearing, touching, tasting, smelling.
K2. Identify the parts of the body that are used by the five senses.
K3. Understand that the use of each sense provides different information about an event or object.
K4. Use each sense to provide appropriate details about an object or event.
K5. Explain how adaptive tools extend the use of senses and aid people who need assistance (Braille, hand lenses, glasses, hearing aids, megaphone, prosthetics, etc.).
K6. Sort and classify objects based on their observable properties.
K7. Explore and describe variations of each sense (taste – bitter, sweet, salty, sour; touch – smooth, soft, rough, etc.; sound – loud, soft, etc.; sight – optical illusions, magnifying glasses, prisms, etc.; smell – pleasant, unpleasant, etc.)

Skills

S1. Generate appropriate questions such as "how do…?".
S2. Observe and describe similarities and differences among objects and events.
S3. Sort and classify objects based on observable properties.
S4. Pose and answer questions based on observations.
S5. Make predictions based on observations.
- Texture of objects
- Taste – sweet, sour, salty, bitter
- Scent
- Sound

S6. Conduct simple investigations.
S7. Employ simple equipment and measuring tools.
- Magnifying glass
- Stethoscope
- Sound Boxes
- Film Containers and odors for sense of smell
- Mystery Sounds tape
- Popcorn Popper

S8. Demonstrate safe use of materials.
S9. Organize appropriate and accurate measurements and observations using:
- Graphic organizers
- Picture and bar graphs
- Illustrations and diagrams
- Journaling
- Etc.

S10. Draw conclusions based on data, observations and findings.
S11. Communicate results or information in an appropriate manner using:
- Pictures
- Oral reports
- Journals
- Sensory Matrix

Content Standard(s) *Generalizations about what students should know and be able to do.*	
CSDE Content Standards (CSDE Science Framework 2004)	**CSDE Primary Expected Performances** (CSDE Science Framework 2004)
Properties of Matter – How does the structure of matter affect the properties and uses of materials? **K.1 - Objects have properties that can be observed and used to describe similarities and differences.** • Some properties can be observed with the senses, and others can be discovered by using simple tools or tests.	A1. Use the senses ~~and simple measuring tools, such as rulers and equal-arm balances~~, to observe common objects and sort them into groups based on size, weight, shape or color. A2. Sort objects made of materials such as wood, paper and metal into groups based on properties ~~such as flexibility, attraction to magnets, and whether they float or sink in water.~~
Scientific Inquiry *Scientific Literacy* *Scientific Numeracy*	**A INQ.1** Make observations and ask questions about objects~~, organisms~~ and the environment. **A INQ.2** Use senses and simple ~~measuring~~ tools to collect data. **A INQ.3** Make predictions ~~based on observed patterns~~. **A INQ.4** Read, write, listen and speak about observations of the natural world. **A INQ.5** Seek information in books, magazines and pictures. **A INQ.6** Present information in words and drawings. ~~**A INQ.7** Use standard tools to measure and describe physical properties such as weight, length and temperature.~~ **A INQ.8** Use nonstandard measures to estimate and compare the sizes of objects. **A INQ.9** Count, order and sort objects by their properties. **A INQ.10** Represent information in bar graphs.

STAGE 2 – DETERMINE ACCEPTABLE EVIDENCE

How will we know if students have achieved the desired results and met the content standards? How will we know that students really understand? Stage two identifies the acceptable evidence that students have acquired the understandings, knowledge, and skills identified in stage one.

Performance Task(s) *Authentic application in new context to evaluate student achievement of desired results designed according to GRASPS. (Goal, Role, Audience, Setting Performance, Standards)*	**Other Evidence** *Other methods to evaluate student achievement of desired results.*
Goal- Create a poster or an oral presentation to describe a secret object. **Role-** You are a detective that has found a missing clue. **Audience-** Your classmates are co-detectives, all vying for the coveted "star detective" position. **Setting-** You will need to give clues that represent each of your senses in order for the other detectives (your classmates) to figure out what your mystery object is. **Performance-** Create a poster and/or an oral presentation for your mystery object clues. Students may give an oral presentation to describe the clues to classmates/co-detectives. Standard- It must include a clue for each sense. Clues may be written or illustrated. Label each illustration. Use the classroom senses word wall to help with labeling.	• You are a doctor and you need to teach (orally or by a labeled diagram) a patient about the senses. Draw and label a picture of the human body showing the parts used by the senses. Include in your drawing at least two adaptive tools to heighten one's senses (Braille, glasses, hearing aids, microphone, megaphone, etc.). • Sort and classify objects based on the senses. • Create a senses book. Students should cut pictures from magazines and glue them on appropriate page that represents each sense. • Have students draw a picture of a person on the computer (Kid Pix Studio) or by hand and label the five senses and the corresponding body part. • Complete a senses matrix (see page 35 of Insights Senses teacher guide). • Paper Picnic *Sense-able Science* (AIMS)Page 138-146 On each page of the picnic basket book, students will illustrate and label a picnic food or drink to go in the basket according to the sense specified on each page (food may be illustrated by using magazine photos, advertisements, hand drawn illustration, etc.).

STAGE 3 – LESSON ACTIVITIES

What will need to be taught and coached, and how should it best be taught, in light of the performance goals in stage one? How will we make learning both engaging and effective, given the goals (stage 1) and needed evidence (stage 2)? Stage 3 helps teachers plan learning experiences that align with stage one and enables students to be successful in stage two. Lesson activities are suggested, however, teachers are encouraged to customize these activities, maintaining alignment with stages one and two.

The suggested lesson activities are not sequenced in any particular order. Teachers may select which lesson activities will best meet the needs of their students and the unit objectives. Each lesson activity is coded with the corresponding knowledge (K) and/or skill (S) objectives that are found in stage one.

In addition to the lessons found in the teacher's manual Insights, The Senses the following lessons are also aligned with the knowledge and skills for this unit (page 4 of this curriculum guide).

SENSES – GENERAL
Introduction to the Senses
Suggested time: 30 minutes each activity
Knowledge and Skills: K1, K2, K3; S1, S2, S5, S10

- A pre-assessment of the objectives will allow you to better select the appropriate lessons related to the knowledge and skills that need to be covered.
- Head, Shoulders, Knees & Toes song, modify song to include hands. Emphasize eyes, mouth, ears, nose and hands. Discuss which body part correlates with the senses.
- I Spy Game – Version of twenty questions. Child thinks of an object they can actually see in the classroom.
- Collect an assortment of books and poems about the senses. Allow children to look through the books. Students should raise questions about the senses.
- Provide additional objects of interest in a learning area. Have children brainstorm lists of words to describe each object. Keep a chart of their descriptive words. Challenge the children to list and classify their descriptive words by the particular sense.
- Create a word wall to help students develop vocabulary and improve spelling. Some suggested vocabulary can be found in the *Insights* teacher guide (at the beginning of each lesson).

SENSES - GENERAL
Super Sensitive! Bulletin Board
Suggested time: 45 minutes (2 sessions)
Knowledge and Skills: K1, K2, K3, K4; S11
Materials: Various art supplies, construction paper, and writing paper.
Have students draw a very large sensory organ (eye, ear, nose, tongue, hand). On it, students can write stories pretending this sensory organ is super sensitive. For example, if they have a large nose, they can smell cookies baking from five miles away. Or, if they have super sensitive eyes, perhaps they can see through walls. Display them on the bulletin board after they have shared them with the class.

SENSES - GENERAL
Paper Picnic ***Sense-able Science*** **(AIMS) Pages 143-146**
Suggested time: 45 minutes (2 sessions)
Knowledge and Skills: K1, K3, K4, K6, K7; S3, S9
On each page of the picnic basket book, students will illustrate and label a picnic food or drink to go in the basket according to the sense specified on each page (food may be illustrated by using magazine photos, advertisements, hand drawn illustration, etc.). Further instructions may be found on worksheets page 138-146. Included in these worksheets are graphing, tallying, collecting data, etc. This is a good culminating activity!

TASTE
Lesson 12 – Tasting, ***The Senses*** **(*Insights*)**
Suggested time: 60 minutes
Knowledge and Skills: K3, K4, K6, K7, S1, S2, S3, S4, S5, S8, S9, S11
Suggested foods

- Sweet- candy, apple, cookies
- Sour- Granny Smith apple, lemon, Sour Patch Kids
- Bitter- radicchio, parsley, radishes, unsweetened chocolate
- Salty- chips, pretzels, Saltine crackers

Please remember to contact the nurse or students' parents to check for food allergies.

TASTE
Eggs-tra Special Scramble ***Sense-able Science*** **(AIMS) pages 84 - 87**
Suggested time: 45 minutes
Knowledge and Skills: K1,K2,K3,K4K8;S1,S2,S4, S5, S6, S7, S8, S9, S10
Students will become aware of how the sense of taste is affected by the sense of sight.
Teacher and students will make two batches of scrambled eggs. Cook one batch normally and use food coloring to make the second batch green. Students will taste each batch. Teacher should ask, "How does the color affect the taste?" Students can also do a blind taste test.
Students will create a same/different chart and graph. Literature connections: *Green Eggs and Ham*

SMELL
Making Scents From Scratch ***Sense-able Science*** **(AIMS) pages 118-119**
Suggested time: 60 minutes
Knowledge and Skills: K1, K2, K6, S3, S5, S8, S10
Materials: Copy of worksheet page 119 (heavy white paper or oak tag works best), flavored gelatin or flavored Kool-Aid mix, paint brush, white glue/water mixture, medicine cups.
Students will decorate an illustration of a bowl of fruit using flavored gelatin and or Kool-Aid. You may allow the students to identify each flavor using their sense of smell and sight. When done, students will be able to feel, smell, touch and see their work of art.

Prep: in medicine cup, mix water and small amount of glue.

1. Hand out a copy of worksheet 119 to each student.

2. Using crayons color the bowl, pineapple, banana and all leaves. (These need to be colored because there is no gelatin/Kool-Aid for these items)
3. Choose a fruit in the bowl for the children to lightly "paint" with the glue/water mixture. Start with the lemon and strawberries that are in the center of the picture, and then work your way out.
4. Put a pinch of gelatin/Kool-Aid in each child's palm. Allow them to smell the gelatin/Kool-Aid before sprinkling it onto the paper.
5. Complete step #4 until all the fruit has been covered.
6. Set aside to dry.

SIGHT
Home Free *Sense-able Science* (AIMS) Pages 5-15
Suggested time: 45 minutes
Skills and Knowledge: K1, K2, K3, K5, S1, S4, S5, S6, S7, S8, S9, S10, S11
Pre-teach: adaptive tools (Braille, etc.)
How does the loss of sight affect whether or not we can put a squirrel in its hole in the tree (rendition of pin the tail on the donkey)? Students will learn that the sense of sight orients them to their environment and allows them to interact with their surroundings.
Students should brainstorm ideas about making adaptations for a blind person. For example, place a ribbon in the center of the tree hole so the hole will be identified using the sense of touch.

TOUCH
Shape Search *Sense-able Science* (AIMS) Detailed Instruction Sheets pages 53-55
Suggested time: 45 minutes
Skills and Knowledge: K1,K2, K3, K4, K6, S1, S2, S3, S8, S9, S10
Materials: Pattern blocks and/or attribute blocks, blindfold
Student will sort and classify shapes without using their eyes. Blindfold the student. S/he will identify blocks using sense of touch.

HEAR
Designer Ears From *Sense-able Science* (AIMS) Pages 133-134
Suggested time: 1 hour and 30 minutes (can be broken into smaller sessions)
Skills and Knowledge: K1, K2, K3, K7, S1, S2, S4, S5, S6, S8, S10
Materials: Pictures of ears
How does the size and shape of ears make a difference in how well we hear? Students will create models of various shaped ears and determine which is most effective. Show illustrations of animals. Brainstorm which animals they think have the best hearing. Animals can be sorted by ear size, shape, etc. Students should provide an explanation for their reasoning. Student should be provided with various materials to create their own ears. Shape, size and fold in the created ears should be discussed. Suggested materials: Styrofoam cups, paper plates, paper towel rolls, string, small paper bowls, etc.
Discussion Points:

- How does an animal respond to sound? (Head and ears go up and head turns)
- What do people do to hear? (turn head, cup ear, make eye contact)
- When you tested the different ears that you designed, what shapes did you find that helped

you to hear better?

- Does the size of the ear make a difference? Explain.

SENSES - GENERAL
Extending the Senses
Skills and Knowledge: K1, K2, K3, K5, K7, S1, S2, S9, S10
Time may vary. This can be done as a center, free exploration, or whole class.
Materials: assorted catalogues that have adaptive tools for schools (teacher should tear out appropriate catalogue pages ahead of time), headphones, large print books, Braille, hearing devices, megaphones, glasses, binoculars, bifocals, earplugs, colored glass, prism, seeing eye dog, etc.
Create a large poster for each sense. Students will cut pictures of adaptive tools that can be used to heighten or change each sense. Pictures will then be glued to the appropriate poster.
Discussion Points:

- How do you think the person in the picture feels now that they use an adaptive tool?
- If a sense is affected, how will that impact the other senses? For example, if a person is blind, the other senses are heightened.

** See page 6 for sample assessment ideas.

LITERATURE RESOURCES

These literature resources have been purchased to supplement the kit and are housed in each elementary school library.

Guided Reading Sets (6 copies in each school)

The Five Senses, Robin Cruise
Everywhere You Look, Fay Robinson
What Can I See?, Peter Sloan
I Smell Smoke!, Debra Blenus
Night Noises, Pauline Cartwright

Read Aloud (1 copy per school)

How Do I Know It's Yucky?, Sharon Cromwell
The Five Senses – Treasures Outside, Jane Belk Moncure
Exploring our Senses – Hearing, Henry Pluckrose
Exploring our Senses – Seeing, Pluckrose
Exploring our Senses – Tasting, Pluckrose
Exploring our Senses – Touching, Pluckrose
We Plant A Seed, Sharon Gordon
Hearing in Living Things, Heineman
Seeing in Living Things, Heineman
Smelling in Living Things, Heineman
Tasting in Living Things, Heineman
Touching in Living Things, Heineman
The Sixth Sense & Other Special Senses, Heineman

Big Books (1 copy per school)

Smelling Things, Allan Fowler
My Five Senses, Aliki
Hearing Things, Allan Fowler
Feeling Things, Allan Fowler

Related Materials that May Be Found in Your Library

Anna's Silent World, Bernard Wolf
Arthur's Eyes, Marc Brown
Arthur's Nose, Marc Brown
Brown Bear, Brown Bear, Martin
Crash! Bang! Boom!, Peter Spier
Is It Rough? Is It Smooth? Is It Shiny?, Hobart
My Five Senses, Aliki
My Hands, Aliki
The Noisy Book, Margaret Wise Brown
Noisy Words—Sniff Shout; Wobble Pop; Skip Trip; Cluck Baa, Burningham
Polar Bear, Polar Bear, Martin
The Quiet Noisy Book, Margaret Wise Brown
The Popcorn Book, Tomie dePaola
Sound My Feet Make, Blanchard
The Wonder of Hands, Baer

Materials List
Senses – Grade 1

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(Based on the *Insights* Senses Kit and AIMS *Sense-able Science*)

Expendable Material
2 meter of cheesecloth to cover film can
1 lb. yellow popcorn
25 sm. paintbrushes
25 4 oz. cups/ for glue
1/2 cup salt
1/2 cup sugar
25 sweet hard candy (individual wrapped)
25 sour candies (individual wrapped)
2 snack bags potato chips
1 box of assorted powders Jell-o/ Kool-aid
• Cherry
• Orange
• Strawberry
• Grape
• Lemon
• Raspberry
Small Items for film canisters
1 bottle garlic powder
1 small bottle spring water
1 bottle vanilla
1 bottle vinegar
1 bottle instant coffee
1 bottle lemon extract
**Teachers Provide- White Glue
**PLEASE check with school nurse about student allergies before tasting any food samples

Reusable Materials
Insights *Senses* Teacher's Guide
AIMS *Sense-able Science* Teachers Guide
40 paper bags
48 film canisters with caps
100 cotton balls
24 magnifying glasses
1 cassette tape "Mystery Sounds"
1 blank cassette tape
1 stethoscope
25 alcohol wipes for stethoscopes
8 10 X 14 plastic trays
Mystery bag items:
• 24 feathers
• 48 stones (24 smooth, 24 rough)
• 24 cotton balls
• 24 marbles
• 24 sm. pieces of sandpaper
Mystery Sound Boxes (jewelry boxes)
6 boxes #1 (penny inside)
6 boxes #2 (rice inside)
6 boxes #3 (cotton ball inside)
6 boxes #4 (stone inside)
6 boxes #5 (bean inside)
6 boxes #6 (beads inside)
1 Hot air popper
1 Large print reading material
1 Braille card
2 sets colored glass paddles(4 per set)

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