

# Empowering Children with High Functioning Autism via Environmentally Focused STEM Learning & Work Parties

## Curriculum Outline

### Executive Summary

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It is very typical for students with HFA to have significant regression in social and behavior skills over the summer if they are not in a continuing education program. The primary goal of this curriculum is to help students maintain and improve social and behavioral skills over the summer through the use of Applied Behavioral Analysis. Due to the relatively small number of HFA students compared to typically developing and because HFA students are often in a grade level that is not consistent with their age; this program is designed to accommodate multiple grade levels of students in one class.

The secondary goal, which is equally important, is to give HFA students a greater feeling of self-efficacy in STEM. Maintaining social and behavioral control will allow the HFA student to remain in school. Feelings of self-efficacy will keep these students engaged. One of the most noted contemporary persons with HFA is Mary Temple Grandin: an American professor of animal science at Colorado State University, a best-selling author, an autistic activist, and a consultant to the livestock industry on animal behavior. In her book, "Emergence: Labeled Autistic" she reveals her childhood social and behavioral struggles which resulted in her being expelled from school. She says that by the time she was in High School, "My grades were deplorable and, worse than that, I didn't care. School was boring...boring...boring. That is until Mr. Brooks, a psychology teacher, entered my life. He talked about animal behavior. I had always liked animals and was fascinated with Mr. Brooks' stories about them." Mr. Brooks also gave her a complex assignment that was outside of the regular class curriculum: The Distorted Room Puzzle (more information available at: [http://en.wikipedia.org/wiki/Ames\\_room](http://en.wikipedia.org/wiki/Ames_room)). These two new interests gave her enough feelings of self-efficacy that she was able to graduate from High School. If she had not received that support, then we may have lost a very important person, scientist and role model. There are many bored yet brilliant HFA students who could use the same support.

This curriculum was created to make sure specific Next Generation Science topics are addressed during each work party. This curriculum is not intended to be used as a comprehensive science summer school for children who are behind in classes. It is designed to help HFA students find areas of interest and self-efficacy that can be integrated into their classes during the regular school year. Since many students with HFA may not have developed language skills, the knowledge based assessments are in the form of a drawing, charts or photos which can easily be used with PECS (Picture Exchange Communication System) for better communication and understanding. The behavior based assessments will follow Applied Behavioral Analysis (ABA) standards and more information and data recording sheets are available in Appendix B & D.

This curriculum is designed for up to 6 students at a time who have been diagnosed with high-functioning autism (HFA) and are entering grades 3-5 in the fall. This program consists of 10 weeks of Saturday sessions that would be held at one or more local schools during summer break. The chosen school(s) should already have an established vegetable garden that needs to be maintained over the summer. A sample syllabus is available in Appendix A.

Students are encouraged to complete lessons in the order described in the syllabus. However, they might plant seeds of one variety yet observe the growth and flowering of a different variety since the seeds they plant will not grow quickly enough. The same is true for the worm farm and bird feeders,

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they will observe multiple worm farms and bird feeders to see the different stages appropriate for each lesson.

Students will have three options during the day:

| Option          | Science Lessons   | Work Parties   | Quiet Time Area   |
|-----------------|---|--|---|
| Main Purpose    | To build a feeling of self-efficacy around science. Learn about new subjects. Learn personal and behavior skills. | Service Learning – students learn about the natural environment through hands on work: planting, weeding, mulching, watering, worm farming, etc. | A place where students can bring their own books, drawing materials and headphone music to relax, unwind and regroup. |
| General Goal(s) | Students will be able remain in the group, meet behavioral goals and complete assessments.                        | Learning about what plants and worms need to grow. Desensitization to new textures, activities and scents.                                       | Learn self-control, self-regulation and calming skills that can help them eventually move to the other options        |

Having multiple options and venues provides flexibility for students who:

- Have difficulty transitioning to the outdoors to have time to become acclimated while others do other tasks before the lesson actually begins.
- Become overwhelmed in the larger group.
- Lose interest or need to continue with a different task due to perseveration.
- Need extra time to complete a task.
- Need to complete the task in a different way.
- Need a sensory break.

### Background: What is Autism Spectrum Disorder?

On WebMD.com Autism spectrum disorder (ASD) is characterized by:

1. Difficulties with verbal & nonverbal communication:
  - Delay in, or lack of, learning to talk. 40% never speak.
  - Difficulty initiating and maintaining conversations.
  - Repetitive use of language
  - Difficulty understanding humor, inference, idioms & metaphor
2. Impaired social interactions & relationships:
  - Significant problems with nonverbal communication skills
  - Failure to establish friendships with children the same age.
  - Lack of empathy.
3. Limited abilities for social activities or play:

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- Focuses on pieces rather than playing with the entire toy.
- Preoccupation with certain topics.
- A need for sameness and routines
- Under-developed fine & gross motor skills
- Sensory Deficits - hypersensitive (over-sensitive) or hyposensitive (under-sensitive).

For more information visit: <http://www.webmd.com/brain/autism/autism-symptoms>

The National Institute of Mental Health website says the term “spectrum” refers to the wide range of symptoms, skills, and levels of impairment or disability that children with ASD can have. Some children are mildly impaired by their symptoms, while others are severely disabled. The latest edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) no longer includes Asperger’s syndrome; the characteristics of Asperger’s syndrome are included within the broader category of ASD. For more information, visit <http://www.nimh.nih.gov/health/topics/autism-spectrum-disorders-asd/index.shtml>

Information on ASD can also be found on the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development [website](#) and the Centers for Disease Control and Prevention website.

### Needs Assessment: How does Autism affect students and why should we all care?

Currently, K-5 curriculum is not designed to accommodate HFA students because typically developing classrooms do not have a track for students who are extremely advanced in STEM. HFA students tend to excel at and have a greater interest in STEM. Right now these students are falling through the cracks because they are bored an age appropriate classes and quickly become disengaged and develop behavioral issues to keep themselves occupied. These students are predisposed to be our next great scientists, physicists and mathematicians. We cannot afford to lose these students who could be so valuable to America’s ability to compete in the global work force.

How does Autism affect students? Some of the main difficulties can include:

- Communicating with teachers, support staff or other students
- Following instructions
- Following classroom rules
- Knowing how to behave
- Concentrating on a task – 29-83% of people with autism also ADHD

Why should we all care?

- Autism is the fastest-growing developmental disability.
- It affects 1 in 68 children in the U.S.
- It affects over 3 million individuals in the U.S. and tens of millions worldwide.
- It costs a family \$60,000 a year on average.
- Statistics suggest an increase of 10 to 17 annually in recent years.
- There is no medical detection or cure for autism.

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## Vision & Positional Statement: Empowerment through feelings of self-efficacy.

Autism is usually present from early childhood, characterized by difficulty in communicating and forming relationships with other people and in using language and abstract concepts. I want to empower children with autism to improve feelings of self-efficacy about communication (whether verbal or non-verbal) and form new relationships with other people through work parties.

Why work parties? As part of earning my Masters of Environmental Education, I am a full-time Teaching Assistant and Director of LEAD (Learning, Environment, Action and Discovery). I facilitate bringing Western Washington University students to work parties in and around Bellingham Washington. After bringing my own 10 year old autistic daughter to multiple work parties, I realized that they offer an instant common context for activity and communication. Children like my daughter often have difficulty starting and maintaining conversations and interactions with others. At work parties, there is a set of clearly defined common goals that can be communicated about verbally or non-verbally by demonstration and/or use of PECS (Picture Exchange Communication System).

My daughter no longer paces the perimeter of the outdoor activity muttering to herself while not knowing how to join in. Instead, when she gets to a work party, she asks, "What's next?" and joins the communal activity for 2-3 hours. Previously, no other social activity has inspired her interest for that long.

Since individual student's ability for length of engagement and ability to remain in a group may vary. I have designed this curriculum to have multiple concurrent offerings. Students will be able to choose between joining the lesson, work party and spending time in the quiet area. I have also integrated a mechanism for positive reinforcement to help students in making their decisions. Since ABA is the only behavioral intervention for students on the autism spectrum that is clinically proven to work, I am including instructions for a base understanding of ABA and sample data recording sheets in Appendix B & D. They are also available in digital form on my website so they can be easily edited to accommodate individual student's needs or existing ABA regiment.

## Goals: Success in the classroom and in life.

The primary goal of this curriculum is to help students maintain and improve social and behavioral skills over the summer through the use of Applied Behavioral Analysis.

The secondary goal, which is equally important, is to give HFA students a greater feeling of self-efficacy in STEM. Maintaining social and behavioral control will allow the HFA student to remain in school. Feelings of self-efficacy will keep these students engaged.

This outdoor curriculum is designed for people with autism to integrate STEM principals into service learning work parties. It will not only empower autistic students socially, but it will tie in learning in an area where they tend to have interest and could potentially influence their career choice.

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## Objectives: Group participation and STEM Learning.

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### Behavioral (B):

- B.1. Create new contexts for verbal & nonverbal communication.
- B.2. Encourage autonomous prolonged involvement in group activities without the use of prompts. (15 min – 45 min).
- B.3. Help students increase motor skills, decrease sensitization to new activities and the outdoor environment. See Appendix B for examples of how students will be desensitized in this curriculum.

### Science Lessons (SL):

- SL.1. Immersion in an environment that teaches knowledge about science through hands on experiences.

## Outcomes

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### Behavioral (B):

- B.1. Increased verbal & nonverbal communication.
- B.2. Autonomous prolonged involvement in group activities without the use of prompts. (15 min – 45 min).
- B.3. Increased motor skills, decrease sensitization to new activities and the outdoor environment.

**Science Lessons (SL):** These objectives come from 3<sup>rd</sup> – 5<sup>th</sup> Grade Next Generation Science Standards: See Appendix C for details.

Students who attend this program will be able to:

- SL.1. Construct an argument that some animals form groups that help members survive.
- SL.2. Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.
- SL.3. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.
- SL.4. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.
- SL.5. Support an argument that plants get the materials they need for growth chiefly from air and water.

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SL.6. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

## Stakeholders

**Students in the Bellingham School District** - This curriculum is designed for up to 6 students at a time who have been diagnosed with high-functioning autism (HFA) and are entering grades 3-5 in the fall. Students do not need to have an ABA plan in place in order to attend but they must have an Individual Education Plan in place in a Whatcom County school. Children with behavioral difficulties will be accepted but we may require them to bring additional support in the form of an individual caregiver.

**Practitioners** – This curriculum requires the participation of as least three adults: one Science Lesson Leader, one Work Party Leader and one Quiet Time Leader. Anyone who is 18 years or greater and works with children having HFA can be a leader: classroom teachers, special needs advocates, environmental educators, aids, camp counselors, youth group leaders, before or after school program facilitators, parents, grandparents, guardians, siblings, friends, etc.

## Structure of Lessons

### Sample Schedule

| Time          | Science Lessons                        | Work Parties                        | Quite Time Area   |
|---------------|--|-------------------------------------|---|
| 10:00 – 10:15 | Welcome & Transition Time              | Weeding                             | Reading books, drawing, listening to music on headphones. |
| 10:15 – 10:45 | Lesson Part A                          | Weeding/Planting                    |   |
| 10:45 – 11:00 | Snack Break: Eating from the Garden    | Snack Break: Eating from the Garden | Optional Snack Break: Eating own snack or from the garden |
| 11:00 – 11:45 | Lesson Part B or Work Party Activities | Planting/Mulching & Watering        | Reading books, drawing, listening to music on headphones. |
| 11:46 – 12:00 | Wrap Up, ABA Rewards & Dismissal       |                                     |   |

### Unit 1: Life Cycle of Plants

Lesson 1: Seeds & Growth

Part A: How do plants grow from seeds?

Part B: Assessment – SL.5. Draw a flow chart demonstrating how plants get the materials they need for growth chiefly from air and water.

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## Lesson 2: Dead Plants and Composting

Part A: Dead plants and the benefits of composting.

Part B: Assessment – SL.6. Draw a flow chart to describe the movement of matter among plants, animals, decomposers, and the environment.

## Unit 2: Worms & Worm Farming

### Lesson 3: Building a Worm Farm

Part A: Add bedding, food and worms to a prepared worm bin.

Part B: Harvest worm compost and use it in the garden.

### Lesson 4: Building a Community

Part A: Try counting how many worms are in a bin.

Part B: Assessment – SL.1. Draw a picture showing why some animals form groups that help members survive.

### Lesson 5: Worm Adaptations

Part A: Find some worms and explore their structural elements.

Part B: Compare them to the worm identification card.

### Lesson 6: Exploring Fossils

Part A: Look at various fossils and compare and contrast features.

Part B: Assessment – SL.2. Draw a picture showing why fossils provide evidence of the organisms and the environments in which they lived long ago.

## Unit 3: Bird Feeders & Needs

### Lesson 7: Bird Feeders

Part A: Fill feeders for different types of birds.

Part B: Place feeders in safe places around the garden.

### Lesson 8: Bird Bodies

Part A: Look at charts and photos of four birds seen in the garden.

Part B: Assessment – SL.3. Draw a picture showing that birds have internal and external structures that function to support survival, growth, behavior, and reproduction.

### Lesson 9: Bird Behavior

Part A: Observe the birds feeding, playing and fighting

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Part B: Draw pictures showing how four different bird species feed, play or fight.

### Lesson 10: Bird Senses

Part A: Look at charts and photos of senses for four birds seen in the garden.

Part B: Assessment – SL.4. Draw a picture showing that birds receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

### Assessment Summary: See data recording charts in Appendix D

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#### Behavioral (B):

##### B.1. Observations of increased verbal & nonverbal communication:

- A. Children participate effectively using verbal & nonverbal communication without prompts.
- B. Children communicate about new experiences without prompts.

##### B.2. Observations of increased engagement in social Interactions & relationships:

- C. Verbal or non-verbal expressions of feeling like part of the team.
- D. Increased interaction and friendships with children the same age without the use of prompts.

##### B.3. Observations of increased time involved in social activities or play.

- E. Children increase time spent outdoors without difficulties.
- F. Children spend more time in group activities without the use of prompts.

#### Science Lessons (SL): Students who attend this program will be able to:

SL.1. Draw a picture showing why some animals form groups that help members survive.

SL.2. Draw a picture showing why fossils provide evidence of the organisms and the environments in which they lived long ago.

SL.3. Draw a picture showing that birds have internal and external structures that function to support survival, growth, behavior, and reproduction.

SL.4. Draw a picture showing that birds receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

SL.5. Draw a flow chart demonstrating how plants get the materials they need for growth chiefly from air and water.

SL.6. Draw a flow chart to describe the movement of matter among plants, animals, decomposers, and the environment.



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## Resources

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### Recommended individual accommodation items:

Students can bring their own books, drawing materials and headphone music to relax, unwind and regroup while in the Quiet Time Area. One individual comfort item (ie. doll, action figure, toy) can be taken to the Work Party or Science Lesson areas but we are not responsible for that item getting wet, dirty or buried.

### Supporting Research:

1. Fjortoft (2001 & 2004) found young children playing in a natural environment had a greater increase in gross motor skill development, motor fitness, balance, and coordination than their peers in a traditional playground setting. This may be due to the physical challenges and physical diversity that natural landscapes afford, such as crawling through bushes, ducking under tree branches, climbing over rocks, and jumping across small streams of water. (Benson & Miller, 2008)
2. ... a child is likely to encounter opportunities for decision making that stimulate problem solving and creative thinking because outdoor spaces are often more varied and less structured than indoor spaces. In addition, there are fewer constraints outdoors on children's gross motor movement and less restriction on their range of visual and gross motor exploration. Together these factors that do not prescribe or limit activity induce curiosity and the use of imagination. (Burdette and Whitaker 2005)
3. Research by Kuo and Taylor (2004) suggests time in natural outdoor settings improves concentration and self-control in children with attention-deficit disorders.
4. Further, active play with others provides a critical opportunity to cultivate social skills, including cooperation, self-awareness, and self-regulation (National Research Council and Institute of Medicine, 2000).
5. Williams (2008) suggests early experiences with nature support children's development of scientific and aesthetic thinking, so they can "appreciate beauty, express creativity, and perceive patterns and variety in sensory dimensions of their worlds and themselves."
6. People with Autism have more relatives in technical fields (Grandin 2013)

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## Evaluation of your Curriculum

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My amazing daughter with HFA was kept in solitary confinement from February until June when she was in second grade because she was incredibly bored and incredibly creative about finding new ways to disrupt the boring classes. In first grade she learned all of the first grade spelling words within the first few weeks so then her one-on-one aid assigned her all of the states, all of their capitals and then all of the elements of the periodic table. Her aid would bring her to teach multiplying by decimals to the third graders. Unfortunately, the school district felt it was too expensive to hire the same aid for second grade and all extra assignments stopped. My daughter went from wanting to be a teacher to hating school.

This curriculum is designed to engage students with HFA while incorporating the only behavioral method clinically proven to help establish and reinforce positive actions. The Anacortes School district did not know how to engage her or control her behavior since they were not trained in and comfortable using ABA methods. Instead, they expelled her and then sent her to a school for behaviorally challenged students.

My hope is that by adding a summer curriculum that is designed by a mother who educated herself about the needs of children with HFA, it will instill better behavior, more social involvement and a pathway to future successes in a career and in life for many HFA students.

## Concluding statement

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This is my first curriculum designed for HFA students. I plan to refine the design as necessary and then develop additional and expanded curricula in the future. I want the best for everyone who is a part of using this curriculum. Please let me know your experiences using this curriculum. I welcome positive and critical statements from all stakeholders so please email me at [wendelindunlap@gmail.com](mailto:wendelindunlap@gmail.com).

Thank you for your time and interest :-)

Wendelin Dunlap

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## Lessons

### Lesson 1: Seeds & Growth

#### Learning Objectives:

Students will be able to:

- ✓ Identify the parts of several plants from the garden.
- ✓ Understand the structure and function of roots, stems, and leaves.
- ✓ Draw a flow chart demonstrating how plants get the materials they need for growth chiefly from air and water.

#### Timeline:

Part A: 30 minutes

Part B: 45 minutes

#### Materials:

- Plant and Flowering Plant Sheets in Appendix A
- Examples of 6 different plants in the garden
- Paper
- Markers, crayons or colored pencils
- Plant clippers
- Gloves

#### Before you begin:

- Make sure each student has a pair of gloves and that there are at least 6 different plants in your garden, otherwise get some plants from a different source before class starts.
- Make sure you have a comfortable place to draw set up.

#### Extensions:

- Have students identify vocabulary words and write down their definitions.
- Test students to see which vocabulary words they can remember how to spell and define.

#### Process:

##### Part A: How do plants grow from seeds?

1. Using either your own charts or those supplied in Appendix A point to the four organs that are found on plants: roots, stems, leaves, and flowers. Concentrating on roots, stems and leaves, describe the structure and function of each organ. Be sure you describe both their external and internal structures.
2. Have the students each choose one plant and explain using words, drawings or PECS why that plant is able to survive in this garden. Examples could be climbing roots, food storage roots and stems, tendrils in vines. Students should describe the relationships between each of the plant organs and how it helps them get the materials they need from air and water.
3. Discuss which plant parts were easy to identify and which were difficult.
4. Discuss which vegetables contain more than one plant organ? What variations were found within the same plant organ?

##### Part B: Draw a flow chart demonstrating how plants get the materials they need for growth chiefly from air and water.

1. Ask students to draw a flow chart for the plant they chose.
2. Ask students to point to the parts of the plants in their flow charts that allow the plants to get the materials they need.

Source: <http://www.discoveryeducation.com/teachers/free-lesson-plans/yummy-plant-parts.cfm>

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## Lesson 5: Worm Adaptations

### Learning Objectives:

Students will be able to:

- ✓ Identify the parts of several worms.
- ✓ Understand the structure and function different body parts of worms.
- ✓ Find similar body parts on a worm identification chart.
- ✓ Compare different types of worms and speculate about reasons for their structural adaptations.

### Timeline:

Part A: 30 minutes

Part B: 45 minutes

### Materials:

- Worm Sheets in Appendix A
- Store bought worms if they are not easy to find in your garden
- Gardening tools
- Gloves

### Before you begin:

- Make sure each student has a pair of gloves and that there are at least 6 worms in your garden, otherwise get some worms from a different source before class starts.
- Make sure you have a comfortable place sit and discuss the worms and charts.

### Extensions:

- Have students identify vocabulary words and write down their definitions.
- Test students to see which vocabulary words they can remember how to spell and define.

### Process:

**Part A:** Find some worms and explore their structural elements.

1. Using either your own charts or those supplied in Appendix A point to various structural parts of a worm. Describe the structure and function of each organ. Be sure you describe both their external and internal structures.
2. Have the students each choose a worm and explain using words, drawings or PECS where it would survive in this garden. Examples could be in the compost bin, deep in the ground, under a rock.
3. Discuss which worm parts were easy to identify and which were difficult.
4. Discuss which structures are most important for adaptation and why (supporting text is in Appendix A).

**Part B:** Compare them to the worm identification card.

1. Ask students to look closely at the characteristics of their live worm and discuss or point to areas on the identification chart that lead them to decide which worm they have.
2. Ask students to point to the parts of the worm that are most important for adaptation.

Source: <http://sciencelearn.org.nz/Science-Stories/Earthworms/Earthwormadaptations>

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### Appendix A: Sample Syllabus & Additional Instructional Information for Lessons

#### Sample Syllabus

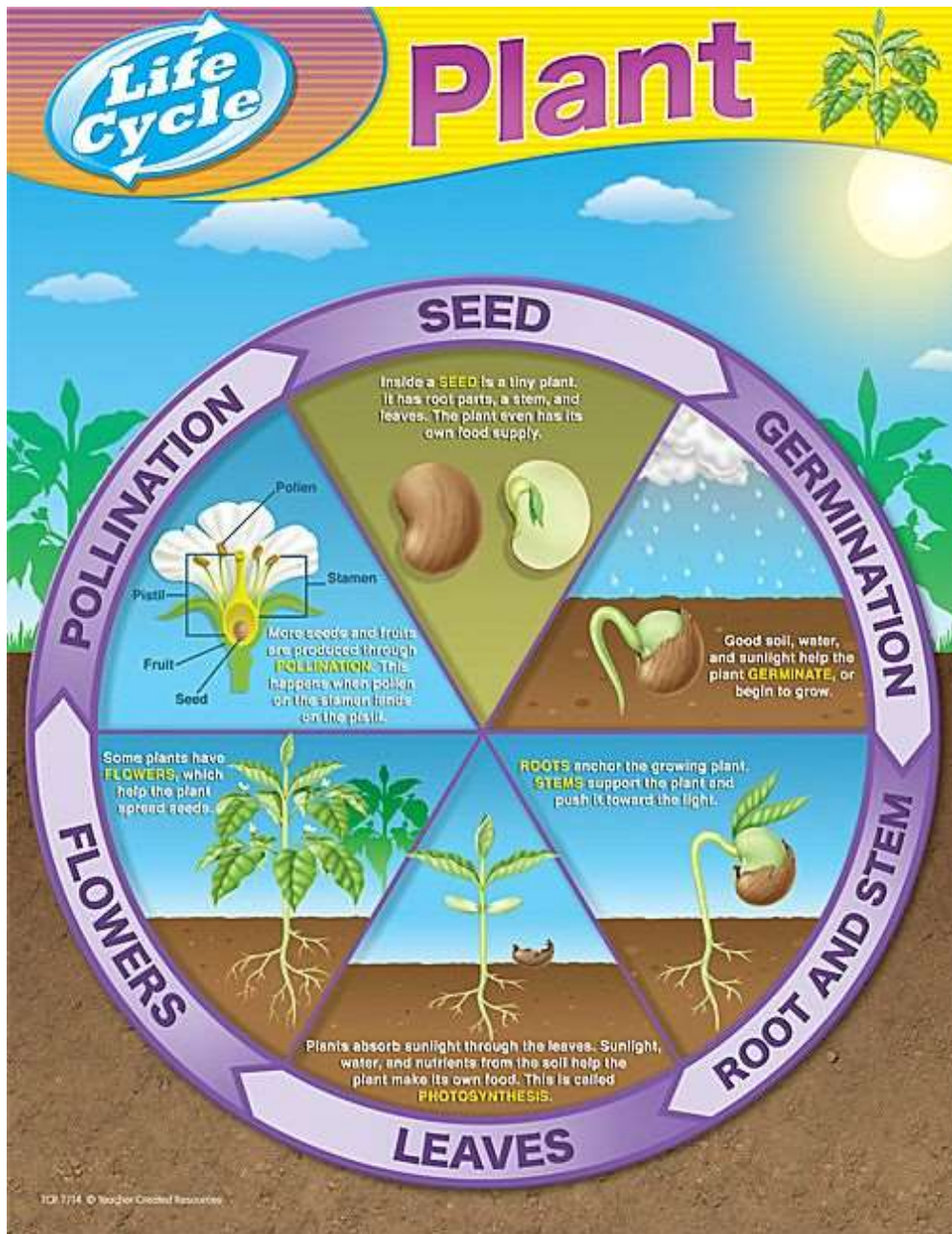
| Day/Date       | Lesson                               | Assessments   |
|----------------|--------------------------------------|---|
| 1. Sat ___/___ | Lesson 1: Seeds & Growth             | Behavioral: Use any combination of ABA Sheets 1, 2, 3 or 4 depending on student's individual activities.<br><br>Science Lesson (if attended): Draw a flow chart demonstrating how plants get the materials they need for growth chiefly from air and water.           |
| 2. Sat ___/___ | Lesson 2: Dead Plants and Composting | Behavioral: Use any combination of ABA Sheets 1, 2, 3 or 4 depending on student's individual activities.<br><br>Science Lesson (if attended): Draw a flow chart to describe the movement of matter among plants, animals, decomposers, and the environment.           |
| 3. Sat ___/___ | Lesson 3: Building a Worm Farm       | Behavioral: Use any combination of ABA Sheets 1, 2, 3 or 4 depending on student's individual activities.  |
| 4. Sat ___/___ | Lesson 4: Building a Community       | Behavioral: Use any combination of ABA Sheets 1, 2, 3 or 4 depending on student's individual activities.<br><br>Science Lesson (if attended): Draw a picture showing why some animals form groups that help members survive.  |
| 5. Sat ___/___ | Lesson 5: Worm Adaptations           | Behavioral: Use any combination of ABA Sheets 1, 2, 3 or 4 depending on student's individual activities.  |
| 6. Sat ___/___ | Lesson 6: Exploring Fossils          | Behavioral: Use any combination of ABA Sheets 1, 2, 3 or 4 depending on student's individual activities.<br><br>Science Lesson (if attended): Draw a picture showing why fossils provide evidence of the organisms and the environments in which they lived long ago. |
| 7. Sat ___/___ | Lesson 7: Bird Feeders               | Behavioral: Use any combination of ABA Sheets 1, 2, 3 or 4 depending on student's individual activities.  |

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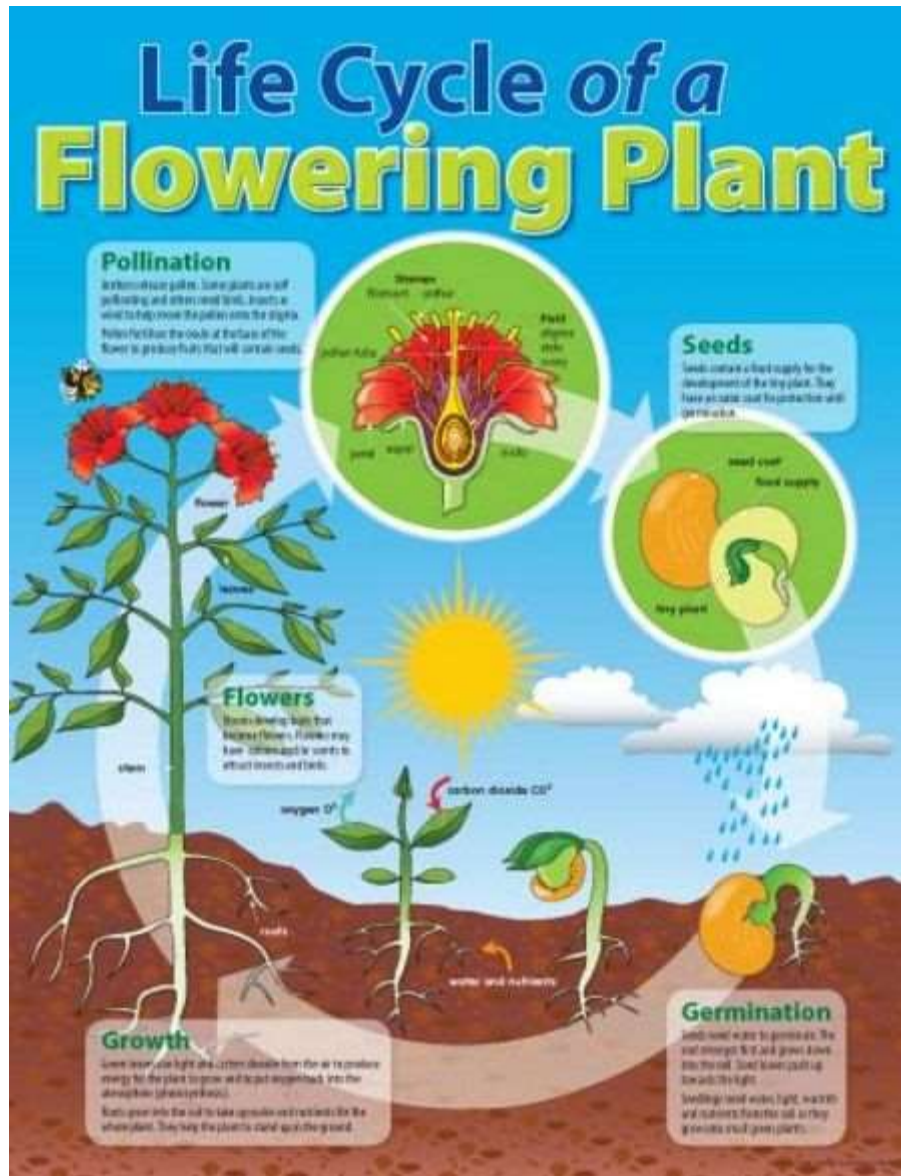
|                               |                                |   |
|-------------------------------|--------------------------------|---|
| <p><b>8. Sat</b> ___/___</p>  | <p>Lesson 8: Bird Bodies</p>   | <p>Behavioral: Use any combination of ABA Sheets 1, 2, 3 or 4 depending on student’s individual activities.</p> <p>Science Lesson (if attended): Draw a picture showing that birds have internal and external structures that function to support survival, growth, behavior, and reproduction.</p>   |
| <p><b>9. Sat</b> ___/___</p>  | <p>Lesson 9: Bird Behavior</p> | <p>Behavioral: Use any combination of ABA Sheets 1, 2, 3 or 4 depending on student’s individual activities.</p>   |
| <p><b>10. Sat</b> ___/___</p> | <p>Lesson 10: Bird Senses</p>  | <p>Behavioral: Use any combination of ABA Sheets 1, 2, 3 or 4 depending on student’s individual activities.</p> <p>Science Lesson (if attended): Draw a picture showing that birds receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.</p> |

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## Lesson 1:



Source: <https://www.pinterest.com/pin/362187995003946922/>



Source: <https://www.pinterest.com/pin/362187995003946983/>

## Lesson 5:

### Structural adaptations

Structural (or **morphological**) adaptations are the physical features of the organism. These include things you can see, like its shape or body covering, as well as its internal organization.

These are some examples of structural adaptations of earthworms:

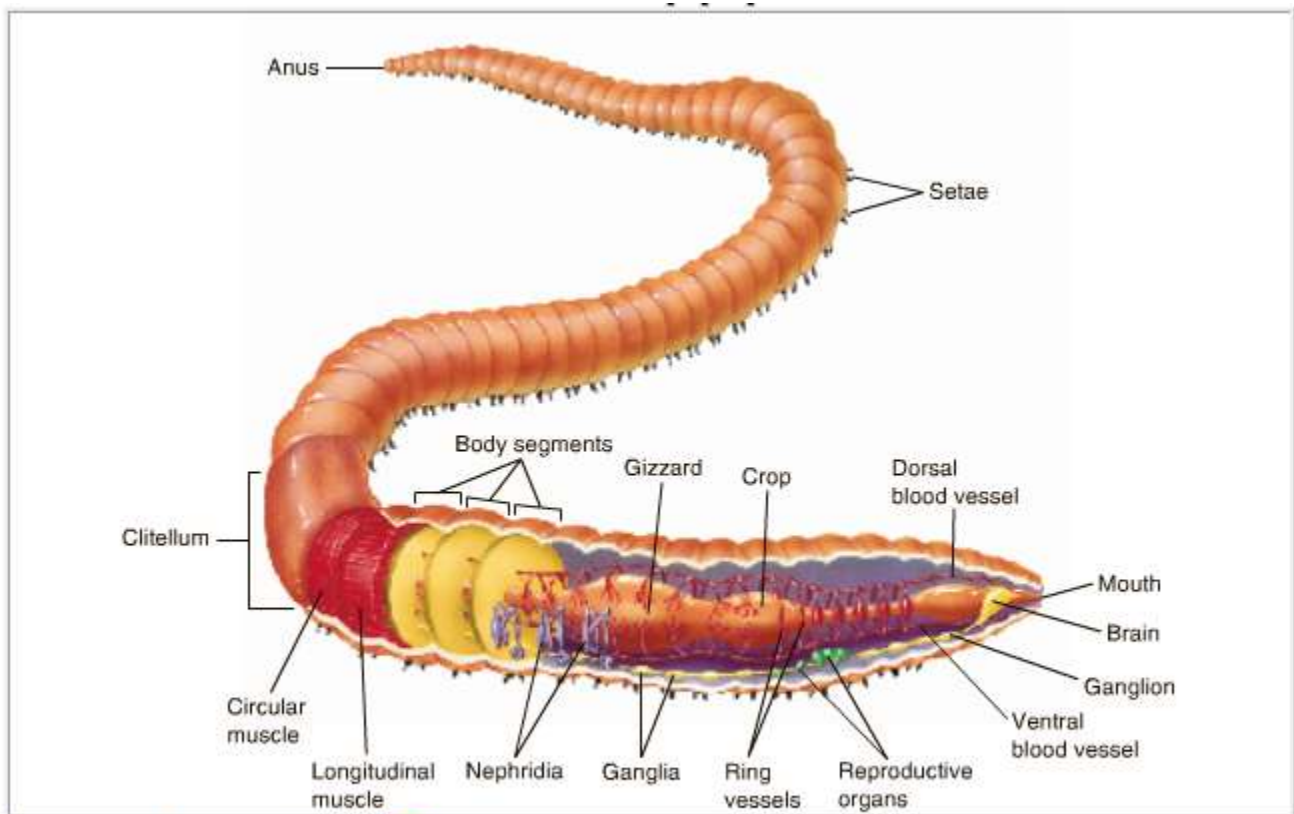
- Each segment on an earthworm's body has a number of bristly hairs, called **setae**. These hairs provide some grip to help the earthworm move through the soil.
- An earthworm has a streamlined body with no antennae or fins or arms or legs! This



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- Streamlined shape is an adaptation to living in narrow burrows underground and the need to move easily through the soil.
- An earthworm has circular muscles that surround each body segment. It also has longitudinal muscles that run the length of its body. These two groups of muscles work together to help the earthworm move.
- In order to get food into its mouth, an earthworm pushes its pharynx out of its mouth to grasp hold of its food. It then pulls the food back into its mouth and wets it with **saliva**.

Source: <http://sciencelearn.org.nz/Science-Stories/Earthworms/Earthwormadaptations>



**Anatomy of an Earthworm** 🌱 Earthworms are oligochaetes that live in soil. Earthworms carry out essential functions using digestive, circulatory, excretory, nervous, and reproductive systems. Many organs, including nephridia and blood vessels, repeat in nearly every body segment.

Source: <http://www.iteachbio.com/Marine-Biology/MarineBiologyGraphics/AnnelidAnatomy.png>

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|                                   | Epigeic Earthworm Species  | Endogeic Earthworm Species  | Anecic Earthworm Species   |
|-----------------------------------|--|---|--|
| <b>Examples</b>                   | Common red worm <i>Eisenia fetida</i><br>Red earthworm <i>Lumbricus rubellus</i>   | Green worm <i>Allolobophora chlorotica</i><br>Blue-grey worm <i>Octolasion cyaneum</i>  | European nightcrawler <i>Lumbricus terrestris</i><br>Black-headed worm <i>Apporectodea longa</i>                                   |
| <b>Characteristic Appearance</b>  | Small-bodied (1-7cm); Tend to have light or colorful pigmentation  | Small-bodied (2-12cm); Tend to lack pigmentation  | Larger-bodied (15-25 cm); Tend to have dark or saturated pigmentation  |
| <b>Dwelling and Feeding Zones</b> | Dwell and feed in the surface soil and above ground in the litter layer; Rarely burrow beneath the uppermost soil strata             | Dwell and feed underground; Move horizontally through complex, temporary burrow networks across the topsoil and upper soil strata       | Dwell underground, feed both within soil and at litter layer; Move vertically through deep and extensive permanent burrow networks |
| <b>Composters?</b>                | Select species are ideal for vermicompost bins; May be found living in small populations near a backyard compost bin                 | Not suited for vermicompost bins; May be found in large numbers in the soil beneath a backyard compost bin                              | Not suited for vermicompost bins; Will enter backyard compost bins during cooling and curing phases                                |
| <b>Worm Trivia</b>                | Epigeic worms can survive in water with high levels of dissolved oxygen for sustained periods, and are commonly used as fishing bait | Endogeic worms rarely emerge from the soil, and are the only type of worm that actually ingests soil minerals (not just organic matter) | Anecic worms have been recorded at body lengths up to 50cm!  |
|                                   |    |    |    |

Source: <https://solanacenter.wordpress.com/2012/12/03/know-your-worms-includes-id-chart/worm-id-guide-2012>

# Empowering Children with High Functioning Autism via Environmentally Focused STEM Learning & Work Parties

## Appendix B: Information about Applied Behavioral Analysis & Desensitization

**ABA RESOURCES: WHAT IS ABA?** - Source: <http://www.centerforautism.com/aba-therapy.aspx>

Behavior Analysis is the scientific study of behavior. Applied Behavior Analysis (ABA) is the application of the principles of learning and motivation from Behavior Analysis, and the procedures and technology derived from those principles, to the solution of problems of social significance. Many decades of research have validated treatments based on ABA.

The Report of the MADSEC Autism Task Force (2000) provides a succinct description, put together by an independent body of experts:

Over the past 40 years, several thousand published research studies have documented the effectiveness of ABA across a wide range of:

- Populations (children and adults with mental illness, developmental disabilities and learning disorders)
- Interventionists (parents, teachers and staff)
- Settings (schools, homes, institutions, group homes, hospitals and business offices), and
- Behaviors (language; social, academic, leisure and functional life skills; aggression, self-injury, oppositional and stereotyped behaviors)

Applied behavior analysis is the process of systematically applying interventions based upon the principles of learning theory to improve socially significant behaviors to a meaningful degree, and to demonstrate that the interventions employed are responsible for the improvement in behavior (Baer, Wolf & Risley, 1968; Sulzer-Azaroff & Mayer, 1991).

### **SOCIALLY SIGNIFICANT BEHAVIORS**

"Socially significant behaviors" include reading, academics, social skills, communication, and adaptive living skills. Adaptive living skills include gross and fine motor skills, eating and food preparation, toileting, dressing, personal self-care, domestic skills, time and punctuality, money and value, home and community orientation, and work skills.

ABA methods are used to support persons with autism in at least six ways:

- To increase behaviors (e.g. reinforcement procedures increase on-task behavior, or social interactions);
- To teach new skills (e.g., systematic instruction and reinforcement procedures teach functional life skills, communication skills, or social skills);
- To maintain behaviors (e.g., teaching self-control and self-monitoring procedures to maintain and generalize job-related social skills);
- To generalize or to transfer behavior from one situation or response to another (e.g., from completing assignments in the resource room to performing as well in the mainstream classroom);
- To restrict or narrow conditions under which interfering behaviors occur (eg, modifying the learning environment); and
- To reduce interfering behaviors (eg, self-injury or stereotypy).

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- ABA is an objective discipline. ABA focuses on the reliable measurement and objective evaluation of observable behavior.

### RELIABLE MEASUREMENT

Reliable measurement requires that behaviors are defined objectively. Vague terms such as anger, depression, aggression or tantrums are redefined in observable and quantifiable terms, so their frequency, duration or other measurable properties can be directly recorded (Sulzer-Azaroff & Mayer, 1991). For example, a goal to reduce a child's aggressive behavior might define "aggression" as: "attempts, episodes or occurrences (each separated by 10 seconds) of biting, scratching, pinching or pulling hair." "Initiating social interaction with peers" might be defined as: "looking at classmate and verbalizing an appropriate greeting."

ABA interventions require a demonstration of the events that are responsible for the occurrence, or non-occurrence, of behavior. ABA uses methods of analysis that yield convincing, reproducible, and conceptually sensible demonstrations of how to accomplish specific behavior changes (Baer & Risley, 1987). Moreover, these behaviors are evaluated within relevant settings such as schools, homes and the community. The use of single case experimental design to evaluate the effectiveness of individualized interventions is an essential component of programs based upon ABA methodologies.

This process includes the following components:

- Selection of interfering behavior or behavioral skill deficit
- Identification of goals and objectives
- Establishment of a method of measuring target behaviors
- Evaluation of the current levels of performance (baseline)
- Design and implementation of the interventions that teach new skills and/or reduce interfering behaviors
- Continuous measurement of target behaviors to determine the effectiveness of the intervention, and
- Ongoing evaluation of the effectiveness of the intervention, with modifications made as necessary to maintain and/or increase both the effectiveness and the efficiency of the intervention. (MADSEC, 2000, p. 21-23)

As the MADSEC Report describes above, treatment approaches grounded in ABA are now considered to be at the forefront of therapeutic and educational interventions for children with autism. The large amount of scientific evidence supporting ABA treatments for children with autism have led a number of other independent bodies to endorse the effectiveness of ABA, including the U.S. Surgeon General, the New York State Department of Health, the National Academy of Sciences, and the American Academy of Pediatrics (see reference list below for sources).

### DISCRETE TRIAL TRAINING

Discrete trial training (DTT) is a particular ABA teaching strategy which enables the learner to acquire complex skills and behaviors by first mastering the subcomponents of the targeted skill. For example, if one wishes to teach a child to request a desired interaction, as in "I want to play," one might first teach subcomponents of this

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skill, such as the individual sounds comprising each word of the request, or labeling enjoyable leisure activities as "play." By utilizing teaching techniques based on the principles of behavior analysis, the learner is gradually able to complete all subcomponent skills independently. Once the individual components are acquired, they are linked together to enable mastery of the targeted complex and functional skill. This methodology is highly effective in teaching basic communication, play, motor, and daily living skills.

Initially, ABA programs for children with Autism utilized only (DTT), and the curriculum focused on teaching basic skills as noted above. However, ABA programs, such as the program implemented at CARD, continue to evolve, placing greater emphasis on the generalization and spontaneity of skills learned. As patients progress and develop more complex social skills, the strict DTT approach gives way to treatments including other components.

Specifically, there are a number of weaknesses with DTT including the fact the DTT is primarily teacher initiated, that typically the reinforcers used to increase appropriate behavior are unrelated to the target response, and that rote responding can often occur. Moreover, deficits in areas such "emotional understanding," "perspective taking" and other Executive Functions such as problem solving skills must also be addressed and the DTT approach is not the most efficient means to do so.

Although the DTT methodology is an integral part of ABA-based programs, other teaching strategies based on the principles of behavior analysis such as Natural Environment Training (NET) may be used to address these more complex skills. NET specifically addresses the above mentioned weaknesses of DTT in that all skills are taught in a more natural environment in a more "playful manner." Moreover, the reinforcers used to increase appropriate responding are always directly related to the task (e.g., a child is taught to say the word for a preferred item such as a "car" and as a reinforcer is given access to the car contingent on making the correct response). NET is just one example of the different teaching strategies used in a comprehensive ABA-based program. Other approaches that are not typically included in strict DTT include errorless teaching procedures and Fluency-Based Instruction.

At CARD all appropriate teaching approaches based on the well-grounded principles of applied behavior analysis are utilized.

### References

- **Baer, D., Wolf, M., & Risley, R. (1968).** Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis, 1*, 91 - 97.
- **Baer, D., Wolf, M., & Risley, R. (1987).** Some still-current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis, 20*, 313 - 327.
- **Maine Administrators of Services for Children with Disabilities (MADSEC) (2000).** *Report of the MADSEC Autism Task Force.*
- Myers, S. M., & Plauché Johnson, C. (2007). Management of children with autism spectrum disorders. *Pediatrics, 120*, 1162-1182.
- **National Academy of Sciences (2001).** *Educating Children with Autism.* Commission on Behavioral and Social Sciences and Education.

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- **New York State Department of Health, Early Intervention Program (1999).** *Clinical Practice Guideline: Report of the Recommendations: Autism / Pervasive Developmental Disorders: Assessment and Intervention for Young Children (Age 0-3 years).*
- **Sulzer-Azaroff, B. & Mayer, R. (1991).** Behavior analysis for lasting change. Fort Worth, TX : Holt, Reinhart & Winston, Inc.
- **US Department of Health and Human Services (1999).** *Mental Health: A Report of the Surgeon General.* Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, National Institutes of Health, National Institute of Mental Health.

**Methods for Desensitization** - Source: <http://www.wikihow.com/Desensitize-Autistic-Children>

Desensitization works best when the child feels comfortable and empowered. Sometimes, part of the aversion is psychological—they remember feeling pain or fear from similar stimuli, so anxiety worsens their reaction. Gently introducing the child can reduce or eliminate that anxiety.

1. Find the thing that upsets the child. Show it to the child, and explain how the desensitization process works. For example, if you are going to help them handle a school bell, then talk to them about how you'll help train their brain to feel less startled by it.

Even if the child can't communicate well, it is important to explain what you are doing—the child probably can understand some or all of what you're saying. It also establishes trust, by showing that you care about them and want them to feel involved.

2. Allow the child to experience the object in a non-threatening way. For example, if you'll be using a flashlight, let them explore it and turn it on and off. If you're desensitizing them to wearing jeans, then let the child touch the buckle or stick their fingers in the legs, without needing to wear them.

Model playing with the object— run your hand along the flashlight, and show them how the on/off button works (while being careful to point it away from the child). Then offer it to the child.

Keep it fun and open-ended. If they want to stick their hands in the jeans and wave them about, let them. If they only feel comfortable with touching them with one finger, that's also okay. Encourage their play and congratulate them on doing well.

This step is crucial to the child's comfort—when they can play with and explore the object on their own terms, they feel in control. If they can manipulate the object how they choose, it becomes much less frightening.

3. Listen to any concerns they have, and reassure them as best as you can. Let them know that they control the pace, and if something hurts, they can say "stop" and it'll stop. Offer to answer any questions they have about desensitization.

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If they instinctively withdraw from the object, remind them that they're in total control, and nothing unexpected will happen. Encourage them to engage with it a little (e.g. stroking it with one finger) and asking how they feel.

If they're still afraid, take it away, and start with something smaller (e.g. a tiny flashlight instead of the big bright one), or work on a different stimuli altogether.

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### Appendix C: 3<sup>rd</sup> – 5<sup>th</sup> Grade Next Generation Science Standard Assessment Information

For more information visit: [http://www.nextgenscience.org/search-performance-expectations?tid\\_2%5B%5D=13&term\\_node\\_tid\\_depth%5B%5D=119](http://www.nextgenscience.org/search-performance-expectations?tid_2%5B%5D=13&term_node_tid_depth%5B%5D=119)

| Science Lesson Number | Grade Level           | Next Generation Science Standard Number and Outcome  |
|-----------------------|-----------------------|--|
| SL.1.                 | 3 <sup>rd</sup> Grade | 3-3-LS2-1: Construct an argument that some animals form groups that help members survive.  |
| SL.2.                 | 3 <sup>rd</sup> Grade | 3-3-LS4-1: Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.   |
| SL.3.                 | 4 <sup>th</sup> Grade | 4-LS1-1: Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.                                  |
| SL.4.                 | 4 <sup>th</sup> Grade | 4-LS1-2: Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways. |
| SL.5.                 | 5 <sup>th</sup> Grade | 5-LS1-1: Support an argument that plants get the materials they need for growth chiefly from air and water.  |
| SL.6.                 | 5 <sup>th</sup> Grade | 5-LS2-1: Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment  |



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**Appendix D: Sample ABA Data Recording Sheets**

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# Sheet 1: Applied Behavioral Analysis Data Recording Sheet for STEM Learning

Student Name \_\_\_\_\_ Primary School \_\_\_\_\_ Date: \_\_\_\_\_

| Lesson           | B1.A Participate w/o prompts | B1.B New Topics w/o prompts | B2.C Group Involvement w/o prompts | B2.D Individual friendships w/o prompts | B3.E Increased motor skills | B3.F Desensitized to a new activity environment | Total Points |
|------------------|------------------------------|-----------------------------|------------------------------------|---|-----------------------------|---|--------------|
| Lesson 1 Part A  |                              |                             |                                    |   |                             |   |              |
| Lesson 1 Part B  |                              |                             |                                    |   |                             |   |              |
| Lesson 2 Part A  |                              |                             |                                    |   |                             |   |              |
| Lesson 2 Part B  |                              |                             |                                    |   |                             |   |              |
| Lesson 3 Part A  |                              |                             |                                    |   |                             |   |              |
| Lesson 3 Part B  |                              |                             |                                    |   |                             |   |              |
| Lesson 4 Part A  |                              |                             |                                    |   |                             |   |              |
| Lesson 4 Part B  |                              |                             |                                    |   |                             |   |              |
| Lesson 5 Part A  |                              |                             |                                    |   |                             |   |              |
| Lesson 5 Part B  |                              |                             |                                    |   |                             |   |              |
| Lesson 6 Part A  |                              |                             |                                    |   |                             |   |              |
| Lesson 6 Part B  |                              |                             |                                    |   |                             |   |              |
| Lesson 7 Part A  |                              |                             |                                    |   |                             |   |              |
| Lesson 7 Part B  |                              |                             |                                    |   |                             |   |              |
| Lesson 8 Part A  |                              |                             |                                    |   |                             |   |              |
| Lesson 8 Part B  |                              |                             |                                    |   |                             |   |              |
| Lesson 9 Part A  |                              |                             |                                    |   |                             |   |              |
| Lesson 9 Part B  |                              |                             |                                    |   |                             |   |              |
| Lesson 10 Part A |                              |                             |                                    |   |                             |   |              |
| Lesson 10 Part B |                              |                             |                                    |   |                             |   |              |
| Lesson 11 Part A |                              |                             |                                    |   |                             |   |              |
| Lesson 11 Part B |                              |                             |                                    |   |                             |   |              |
| Lesson 12 Part A |                              |                             |                                    |   |                             |   |              |
| Lesson 12 Part B |                              |                             |                                    |   |                             |   |              |

| Reward criteria | B1.A Participate | B1.B New Topics | B2.C Involvement | B2.D Friendships | B3.E Motor skills | B4.F Desensitized | Total Points |
|-----------------|------------------|-----------------|------------------|------------------|-------------------|-------------------|--------------|
| Lesson Part A   |                  |                 |                  |                  |                   |                   |              |
| Lesson Part B   |                  |                 |                  |                  |                   |                   |              |

|         |              |              |              |              |              |              |          |
|---------|--------------|--------------|--------------|--------------|--------------|--------------|----------|
| Rewards | _____ Points | _____ Points | _____ Points | _____ Points | _____ Points | _____ Points | 0 Points |
| Stars   |              |              |              |              |              |              | 0        |

\* Additional Stars can be awarded for \_\_\_\_\_

## Sheet 2: Applied Behavioral Analysis Data Recording Sheet for Work Parties

Student Name \_\_\_\_\_ Primary School \_\_\_\_\_ Date: \_\_\_\_\_

| Work Party    | B1.A Participate w/o prompts | B1.B New Topics w/o prompts | B2.C Group Involvement w/o prompts | B2.D Individual friendships w/o prompts | B3.E Increased motor skills | B3.F Desensitized to a new activity environment | Total Points |
|---------------|------------------------------|-----------------------------|------------------------------------|---|-----------------------------|---|--------------|
| Day 1 Part A  |                              |                             |                                    |   |                             |   |              |
| Day 1 Part B  |                              |                             |                                    |   |                             |   |              |
| Day 2 Part A  |                              |                             |                                    |   |                             |   |              |
| Day 2 Part B  |                              |                             |                                    |   |                             |   |              |
| Day 3 Part A  |                              |                             |                                    |   |                             |   |              |
| Day 3 Part B  |                              |                             |                                    |   |                             |   |              |
| Day 4 Part A  |                              |                             |                                    |   |                             |   |              |
| Day 4 Part B  |                              |                             |                                    |   |                             |   |              |
| Day 5 Part A  |                              |                             |                                    |   |                             |   |              |
| Day 5 Part B  |                              |                             |                                    |   |                             |   |              |
| Day 6 Part A  |                              |                             |                                    |   |                             |   |              |
| Day 6 Part B  |                              |                             |                                    |   |                             |   |              |
| Day 7 Part A  |                              |                             |                                    |   |                             |   |              |
| Day 7 Part B  |                              |                             |                                    |   |                             |   |              |
| Day 8 Part A  |                              |                             |                                    |   |                             |   |              |
| Day 8 Part B  |                              |                             |                                    |   |                             |   |              |
| Day 9 Part A  |                              |                             |                                    |   |                             |   |              |
| Day 9 Part B  |                              |                             |                                    |   |                             |   |              |
| Day 10 Part A |                              |                             |                                    |   |                             |   |              |
| Day 10 Part B |                              |                             |                                    |   |                             |   |              |
| Day 11 Part A |                              |                             |                                    |   |                             |   |              |
| Day 11 Part B |                              |                             |                                    |   |                             |   |              |
| Day 12 Part A |                              |                             |                                    |   |                             |   |              |
| Day 12 Part B |                              |                             |                                    |   |                             |   |              |

| Reward criteria | B1.A Participate | B1.B New Topics | B2.C Involvement | B2.D Friendships | B3.E Motor skills | B4.F Desensitized | Total Points |
|-----------------|------------------|-----------------|------------------|------------------|-------------------|-------------------|--------------|
| Day Part A      |                  |                 |                  |                  |                   |                   |              |
| Day Part B      |                  |                 |                  |                  |                   |                   |              |

|         |              |              |              |              |              |              |          |
|---------|--------------|--------------|--------------|--------------|--------------|--------------|----------|
| Rewards | _____ Points | _____ Points | _____ Points | _____ Points | _____ Points | _____ Points | 0 Points |
| Stars   |              |              |              |              |              |              | 0        |

\* Additional Stars can be awarded for \_\_\_\_\_

## Applied Behavioral Analysis Data Recording Sheet for Quiet Time Area

Student Name \_\_\_\_\_ Primary School \_\_\_\_\_ Date: \_\_\_\_\_

| Quiet Time Area | B1.A Participate w/o prompts | B1.B New Topics w/o prompts | B2.C Group Involvement w/o prompts | B2.D Individual friendships w/o prompts | B3.E Increased motor skills | B3.F Desensitized to a new activity environment | Total Points |
|-----------------|------------------------------|-----------------------------|------------------------------------|---|-----------------------------|---|--------------|
| Day 1 Part A    |                              |                             |                                    |   |                             |   |              |
| Day 1 Part B    |                              |                             |                                    |   |                             |   |              |
| Day 2 Part A    |                              |                             |                                    |   |                             |   |              |
| Day 2 Part B    |                              |                             |                                    |   |                             |   |              |
| Day 3 Part A    |                              |                             |                                    |   |                             |   |              |
| Day 3 Part B    |                              |                             |                                    |   |                             |   |              |
| Day 4 Part A    |                              |                             |                                    |   |                             |   |              |
| Day 4 Part B    |                              |                             |                                    |   |                             |   |              |
| Day 5 Part A    |                              |                             |                                    |   |                             |   |              |
| Day 5 Part B    |                              |                             |                                    |   |                             |   |              |
| Day 6 Part A    |                              |                             |                                    |   |                             |   |              |
| Day 6 Part B    |                              |                             |                                    |   |                             |   |              |
| Day 7 Part A    |                              |                             |                                    |   |                             |   |              |
| Day 7 Part B    |                              |                             |                                    |   |                             |   |              |
| Day 8 Part A    |                              |                             |                                    |   |                             |   |              |
| Day 8 Part B    |                              |                             |                                    |   |                             |   |              |
| Day 9 Part A    |                              |                             |                                    |   |                             |   |              |
| Day 9 Part B    |                              |                             |                                    |   |                             |   |              |
| Day 10 Part A   |                              |                             |                                    |   |                             |   |              |
| Day 10 Part B   |                              |                             |                                    |   |                             |   |              |
| Day 11 Part A   |                              |                             |                                    |   |                             |   |              |
| Day 11 Part B   |                              |                             |                                    |   |                             |   |              |
| Day 12 Part A   |                              |                             |                                    |   |                             |   |              |
| Day 12 Part B   |                              |                             |                                    |   |                             |   |              |

| Reward criteria | B1.A Participate | B1.B New Topics | B2.C Involvement | B2.D Friendships | B3.E Motor skills | B4.F Desensitized | Total Points |
|-----------------|------------------|-----------------|------------------|------------------|-------------------|-------------------|--------------|
| Day Part A      |                  |                 |                  |                  |                   |                   |              |
| Day Part B      |                  |                 |                  |                  |                   |                   |              |

|         |              |              |              |              |              |              |          |
|---------|--------------|--------------|--------------|--------------|--------------|--------------|----------|
| Rewards | _____ Points | _____ Points | _____ Points | _____ Points | _____ Points | _____ Points | 0 Points |
| Stars   |              |              |              |              |              |              | 0        |

\* Additional Stars can be awarded for \_\_\_\_\_

