**Content Area:** Science **Grade Level:** 4

**Content Standard:** S4.B.1: Structure and Function of Organisms

**PASA Anchor:**S4.B.1.1(Alternate) Identify characteristics and needs of living things

**PASA linked to PSSA Anchor(s):** S4.B.1.1 Identify and describe similarities and differences between living things and their life processes.

**Grade Level PSSA Anchor/Eligible Content:** S4.B.1.1.2 Compare similar functions of external characteristics of organisms (e.g., anatomical characteristics: appendages, type of covering, body segments).

 S4.B.1.1.4 Describe how different parts of a living thing work together to provide what the organism needs (e.g., parts of plants: roots, stems, leaves)

|  |
| --- |
| **Webb’s Depth of Knowledge (Cognitive Demand)** |
| **[ ]  1 – Recall** **[ ]  2 – Application of Skill/Concept** | **[x]  3 – Strategic Thinking****[ ]  4 – Extended Thinking** |

**Big Idea:**

**Essential Questions:** How do the structures and functions of living things allow them to meet their needs?

|  |
| --- |
| **Prioritization**  |
| [x]  Skill is assessed in the general assessment [x]  Skill is assessed in the alternate assessment[x]  Skill is required for future learning in the content area [x]  Needed in next age/appropriate environment[x]  Required for instructional activities in a variety of practice communities[x]  Lesson plan available in SAS Voluntary Model Curriculum |

**Example of General Education Instructional Activity:**

In this unit, students learn plant anatomy. Students will:

* Identify parts of a plant and their functions
* Explain how each plant part helps the plant to survive in its environment.
1. **Introductory Activity: Let’s Sing About Plant Parts**

Give each student a copy of the Plant Song ([S-4-3-2\_Plant Song and American Idol Poster.doc](http://websites.pdesas.org/sethtriggs/2010/5/25/44720/file.aspx)). Sing the song once for students and then have the class sing it with you a few times. Once students are comfortable, take volunteers to create their own version of the song. Choose three students to serve as judges and allow your students to share their own versions of the “Plant Parts” song, as an American Idol audition. Several copies of American Idol poster can be printed and hung around the room. Have the judges decide on the winner of the audition. The winner of the audition can win a certificate, as well as any student who participated. Certificates for any occasion can be found on the following Web site: <http://www.certificatestreet.com/templates/education/3/education.html>

1. In this lesson, students will identify the various parts of a plant’s anatomy and explain their functions. Begin the lesson by having students work in pairs for 10 minutes, to brainstorm the similarities and differences between what plants and people need in order to survive. Each student should have a copy of the Plants and People Venn Diagram ([S-4-3-2\_Plants and People Venn Diagram and KEY.doc](http://websites.pdesas.org/sethtriggs/2010/5/25/44721/file.aspx)). This resource can also be projected on either your overhead or on a SMART Board. After 10 minutes, have students share their answers. Write the correct answers in the Venn diagram projected on the board. Explain to the class the needs of plants and people for survival. Students should begin to see that plants and people have more similar needs for survival than different needs.
2. Students will have an opportunity to interact and use each other’s prior knowledge to match the plant part vocabulary with the actual plant part. The Web site <http://www.softschools.com/science/plants/plant_parts/> can be projected onto your overhead or on a SMART Board. Pick four student volunteers to help you “drag and drop” the plant parts in the correct places. (Although you have four student volunteers taking turns at the board, the entire class should be brainstorming and giving their input as to where the plant parts belong.)
3. After students complete the Internet activity, have them complete the Plant Parts table ([S-4-3-2\_Plant Parts Table and KEY.doc](http://websites.pdesas.org/sethtriggs/2010/5/25/44719/file.aspx)). Allow students 10 minutes to fill in the “What do I think this plant part does?” column. Have students share their ideas with the rest of the class. Get a class consensus and fill in their idea in the column. After some class discussion, together with students fill in the “What does this plant part really do?” column with the correct answers.
4. Have them write down one question they still have about plant parts. Then have them pass their paper to the student on their left. Students should read the question on the paper and answer it if they know the correct answer. Otherwise, they should keep passing the papers as many as times as is necessary. Once students receive a paper with an answer already on it, they can either write “Agree,” if they think the answer is correct, or “Disagree,” if they think the answer is incorrect. If they write “Disagree,” they also need to provide the answer they believe is correct. You can provide the answers to any questions that cannot be answered by students.
5. **Extension:**
* Take the class to a local garden or greenhouse for a field trip. Allow students to take pictures of their favorite plants or flowers. Use those pictures to create a class scrapbook that focuses on plant parts. Each student should have a page in the scrapbook. On their pages students should include the picture of their favorite plant or flower, and each of the plant parts should be labeled. Have students write in the function of each plant part as well. If you are unable to go to a local garden or greenhouse, have students look for their favorite plants and flowers on the Internet. If necessary, students can substitute printed pictures from the Internet for the photos.

|  |  |
| --- | --- |
| **General Instructional Format** | **Formative Assessment Options**  |
| **[x]  Cooperative learning****[ ]  Project based****[ ]  Performance event/task****[ ]  Note-taking****[x]  Presentation****[x]  Direct Instruction (I do, We do, You do)****[ ] Indirect Instruction****[x] Other:** **graphic organizers**  | **[ ]  Observation with Data Collection****[ ]  Random Reporter** **[x]  Ticket out the door (Questions-Answers-Agree/Disagree)** **[x]  Think Pair Share** **[x]  Student work sample (Plant Parts song, Venn Diagram similarities/differences, Plant Parts Table)** **[ ]  Video tape****[ ]  Multiple choice Item** **[ ]  Open response Item** **[x]  Item Other:** **on-line drag and drop plant parts** |

**Access to the Instructional Activity for Students at Different Communication Levels**

**Symbolic**

In this unit, students learn plant anatomy. Students will:

* Identify parts of a plant and their functions
* Explain how each plant part helps the plant to survive in its environment.
1. **Introductory Activity: Let’s Sing About Plant Parts**

Give each student a copy of the Plant Song ([S-4-3-2\_Plant Song and American Idol Poster.doc](http://websites.pdesas.org/sethtriggs/2010/5/25/44720/file.aspx)) (provide adapted Plant Song: words paired with pictures/symbols). Sing the song once for students and then have the class sing it with you a few times (provide student with a pre-recorded version of the song for repeated practice). Once students are comfortable, take volunteers to create their own version of the song (using an adapted graphic organizer and sentence strips paired with pictures or predictive software with speech capability). Choose three students to serve as judges and allow your students to share their own versions of the “Plant Parts” song, as an American Idol audition. Several copies of American Idol poster can be printed and hung around the room. Have the judges decide on the winner of the audition. The winner of the audition can win a certificate, as well as any student who participated. Certificates for any occasion can be found on the following Web site: <http://www.certificatestreet.com/templates/education/3/education.html>

1. In this lesson, students will identify the various parts of a plant’s anatomy and explain their functions. Begin the lesson by having students work in pairs for 10 minutes, to brainstorm (using a graphic organizer with a word bank paired with speech and/or pictures) the similarities and differences between what plants and people need in order to survive (what plants need/what people need). Each student should have a copy of the Plants and People Venn Diagram (adapted with pictures/symbols) ([S-4-3-2\_Plants and People Venn Diagram and KEY.doc](http://websites.pdesas.org/sethtriggs/2010/5/25/44721/file.aspx)). This resource can also be projected on either your overhead or on a SMART Board. After 10 minutes, have students share their answers (project using a SMART Board and pre-recorded statements). Write the correct answers in the Venn diagram projected on the board. Explain to the class the needs of plants and people for survival (provide student with a completed Venn Diagram similarities highlighted). Students should begin to see that plants and people have more similar needs for survival than different needs.
2. Students will have an opportunity to interact and use each other’s prior knowledge to match the plant part vocabulary (using words paired with pictures) with the actual plant part (on an adapted graphic organizer – similar to electronic website version). The Web site <http://www.softschools.com/science/plants/plant_parts/> can be projected onto your overhead or on a SMART Board. Pick four student volunteers to help you “drag and drop” the plant parts in the correct places. (Although you have four student volunteers taking turns at the board, the entire class should be brainstorming and giving their input as to where the plant parts belong. – provide the student with an adapted graphic organizer with pictures paired with words)
3. After students complete the Internet activity, have them complete the Plant Parts table (adapted to pair words with pictures/symbols) ([S-4-3-2\_Plant Parts Table and KEY.doc](http://websites.pdesas.org/sethtriggs/2010/5/25/44719/file.aspx)). Allow students 10 minutes to fill in the “What do I think this plant part does?” column (using sentence strip bank to complete this column). Have students share (using plant part function table in picture format along with pre-recorded statements on a voice output device) their ideas with the rest of the class. Get a class consensus and fill in their idea in the column (using sentence strip bank to complete this column). After some class discussion, together with students fill in the “What does this plant part really do?” column (using sentence strip bank to complete this column) with the correct answers.
4. Have them write (place sticker/label with question on paper) down one question they still have about plant parts (choose a question paired with pictures from a bank of questions). Then have them pass their paper to the student on their left. Students should read (student will work with partner who will read) the question on the paper and answer it (pick answer from possible options in the response bank) if they know the correct answer. Otherwise, they should keep passing the papers as many as times as is necessary. Once students receive a paper with an answer already on it, they can either write “Agree,” if they think the answer is correct, or “Disagree,” if they think the answer is incorrect (stickers with words paired with pictures). If they write “Disagree,” they also need to provide the answer they believe is correct. You can provide the answers to any questions that cannot be answered by students.
5. **Extension:**
* Take the class to a local garden or greenhouse for a field trip. Allow students to take pictures of their favorite plants or flowers. Use those pictures to create a class scrapbook that focuses on plant parts. Each student should have a page in the scrapbook. On their pages students should include the picture of their favorite plant or flower, and each of the plant parts should be labeled (stickers with words paired with pictures). Have students write in the function of each plant part column (using sentence strip bank) as well. If you are unable to go to a local garden or greenhouse, have students look for their favorite plants and flowers on the Internet. If necessary, students can substitute printed pictures from the Internet for the photos.

**Emerging Symbolic**

In this unit, students learn plant anatomy. Students will:

* Identify parts of a plant and their functions
* Explain how each plant part helps the plant to survive in its environment.
1. **Introductory Activity: Let’s Sing About Plant Parts**

Give each student a copy of the Plant Song ([S-4-3-2\_Plant Song and American Idol Poster.doc](http://websites.pdesas.org/sethtriggs/2010/5/25/44720/file.aspx)) (provide modified Plant Song: paired with pictures/symbols). Sing the song once for students and then have the class sing it with you a few times (provide student with a pre-recorded version of the song for repeated practice). Once students are comfortable, take volunteers to create their own version of the song (using a modified graphic organizer and picture/symbol based sentence strips or symbol based predictive software with speech capability). Choose three students to serve as judges and allow your students to share their own versions of the “Plant Parts” song, as an American Idol audition. Several copies of American Idol poster can be printed and hung around the room. Have the judges decide on the winner of the audition. The winner of the audition can win a certificate, as well as any student who participated. Certificates for any occasion can be found on the following Web site: <http://www.certificatestreet.com/templates/education/3/education.html>

1. In this lesson, students will identify the various parts of a plant’s anatomy and explain their functions. Begin the lesson by having students work in pairs (small group paired with peer supports – peer provides information via individual communication modes for plants/people parts and functions) for 10 minutes, to brainstorm (using a graphic organizer with a symbol based bank paired with speech and/or pictures) the similarities and differences between what plants and people need in order to survive (what plants need/what people need). Each student should have a copy of the Plants and People Venn Diagram (modified with pictures/symbols) ([S-4-3-2\_Plants and People Venn Diagram and KEY.doc](http://websites.pdesas.org/sethtriggs/2010/5/25/44721/file.aspx)). This resource can also be projected on either your overhead or on a SMART Board. After 10 minutes, have students share their answers (project using a SMART Board and pre-recorded statements/paired with symbols). Write the correct answers in the Venn diagram projected on the board. Explain to the class the needs of plants and people for survival (provide student with a completed Venn Diagram similarities highlighted). Students should begin to see that plants and people have more similar needs for survival than different needs.
2. Students will have an opportunity to interact and use each other’s prior knowledge to match the plant part vocabulary (using symbols that represent the plant parts and functions) with the actual plant part (on a modified graphic organizer – that uses color and size to highlight specific concepts). The Web site <http://www.softschools.com/science/plants/plant_parts/> can be projected onto your overhead or on a SMART Board. Pick four student volunteers to help you “drag and drop” the plant parts in the correct places. (Although you have four student volunteers taking turns at the board, the entire class should be brainstorming and giving their input as to where the plant parts belong. – provide the student with a modified graphic organizer with pictures/symbols representing what plants need and what people need)
3. After students complete the Internet activity, have them complete the Plant Parts table (modified with symbols/pictures and reduced items –parts/functions) ([S-4-3-2\_Plant Parts Table and KEY.doc](http://websites.pdesas.org/sethtriggs/2010/5/25/44719/file.aspx)). Allow students 10 minutes to fill in the “What do I think this plant part does?” column (using symbol based sentence strip bank to complete). Have students share (using plant part function table in picture format along with pre-recorded statements on a voice output device) their ideas with the rest of the class. Get a class consensus and fill in their idea in the column (using symbol based sentence strip bank to complete this column). After some class discussion, together with students fill in the “What does this plant part really do?” column (using symbol based sentence strip bank to complete this column) with the correct answers.
4. Have them write (place sticker/label with symbol based question on paper) down one question they still have about plant parts (choose a symbol based question from a bank of questions). Then have them pass their paper to the student on their left. Students should read (student will work with partner who will read) the question on the paper and answer it (pick answer from possible options in the symbol based response bank) if they know the correct answer. Otherwise, they should keep passing the papers as many as times as is necessary. Once students receive a paper with an answer already on it, they can either write “Agree,” if they think the answer is correct, or “Disagree,” if they think the answer is incorrect (stickers with symbols for “agree” or “disagree”). If they write “Disagree,” they also need to provide the answer they believe is correct. You can provide the answers to any questions that cannot be answered by students.
5. **Extension:**
* Take the class to a local garden or greenhouse for a field trip. Allow students to take pictures of their favorite plants or flowers. Use those pictures to create a class scrapbook that focuses on plant parts. Each student should have a page in the scrapbook. On their pages students should include the picture of their favorite plant or flower, and each of the plant parts should be labeled (stickers with words paired with pictures). Have students write in the function of each plant part column (using symbol based sentence strip bank) as well. If you are unable to go to a local garden or greenhouse, have students look for their favorite plants and flowers on the Internet. If necessary, students can substitute printed pictures from the Internet for the photos.

**Pre-Symbolic**

In this unit, students learn plant anatomy. Students will:

* Identify parts of a plant and their functions
* Explain how each plant part helps the plant to survive in its environment.
1. **Introductory Activity: Let’s Sing About Plant Parts**

Give each student a copy of the Plant Song ([S-4-3-2\_Plant Song and American Idol Poster.doc](http://websites.pdesas.org/sethtriggs/2010/5/25/44720/file.aspx)) (provide modified Plant Song: paired with objects/manipulatives that represent vocabulary focusing on the critical function). Sing the song once for students (alert and engage student via sensory stimuli/input—auditory, visual, smell, taste, touch related to the content) and then have the class sing it with you a few times (provide student with a pre-recorded version of the song paired with objects representing the parts and functions – color code corresponding part and function - for repeated practice \*Fade out color coding of part and function to ensure that student is learning content and not just matching colors). Once students are comfortable, take volunteers to create their own version of the song (using a tactile graphic organizer paired with objects/manipulatives and symbol based predictive software with speech capability). Choose three students to serve as judges and allow your students to share their own versions of the “Plant Parts” song, as an American Idol audition. Several copies of American Idol poster can be printed and hung around the room. Have the judges decide on the winner of the audition. The winner of the audition can win a certificate, as well as any student who participated. Certificates for any occasion can be found on the following Web site: <http://www.certificatestreet.com/templates/education/3/education.html>

1. In this lesson, students will identify the various parts of a plant’s anatomy (by pairing the actual plant part with a representational object) and explain their functions (by picking the representational object for the function). Begin the lesson by having students work in pairs for 10 minutes, to brainstorm (using modified graphic organizer with a symbol based bank paired with speech and representational objects) the similarities and differences between what plants and people need in order to survive (modified organizer paired with representational objects for what plants need/what people need). Each student should have a copy of the Plants and People Venn Diagram (modified with pictures/symbols and paired with tactile representational objects) ([S-4-3-2\_Plants and People Venn Diagram and KEY.doc](http://websites.pdesas.org/sethtriggs/2010/5/25/44721/file.aspx)). This resource can also be projected on either your overhead or on a SMART Board. After 10 minutes, have students share their answers (project using a SMART Board and pre-recorded statements/paired with symbols and tactile representational objects). Write the correct answers in the Venn diagram projected on the board. Explain to the class the needs of plants and people for survival (provide student with a Venn Diagram that has only similarities listed). Students should begin to see that plants and people have more similar needs for survival than different needs.
2. Students will have an opportunity to interact and use each other’s prior knowledge to match the plant part vocabulary (using tactile symbols that represent the plant parts and functions) with the actual plant part (on a modified graphic organizer that uses color and size to highlight specific concepts - \* Fade out color coding of part and function to ensure that student is learning content and not just matching colors). The Web site <http://www.softschools.com/science/plants/plant_parts/> can be projected onto your overhead or on a SMART Board. Pick four student volunteers to help you “drag and drop” the plant parts in the correct places. (Although you have four student volunteers taking turns at the board, the entire class should be brainstorming and giving their input as to where the plant parts belong (provide the student with a modified graphic organizer with tactile symbols representing what plants need and what people need).
3. After students complete the Internet activity, have them complete the Plant Parts table (modified with tactile symbols and reduced items –parts/functions) ([S-4-3-2\_Plant Parts Table and KEY.doc](http://websites.pdesas.org/sethtriggs/2010/5/25/44719/file.aspx)). Allow students 10 minutes to fill in the “What do I think this plant part does?” column (using tactile representational symbols). Have students share (using plant part function table with tactile representational objects along with pre-recorded statements on a voice output device) their ideas with the rest of the class. Get a class consensus and fill in their idea in the column (using tactile representational symbols). After some class discussion, together with students fill in the “What does this plant part really do? ” column (using tactile representational symbols to complete multiple word response on a sentence strip template) with the correct answers.
4. Have them write (using tactile representational symbols paired with symbol and word based questions on a sticker/label, the student will identify a question and a peer will place the corresponding sticker/label on the paper) down one question they still have about plant parts (choose a tactile representational symbol based question from a bank of questions). Then have them pass their paper to the student on their left. Students should read (student will work with partner who will read and pair the question with corresponding representational objects) the question on the paper and answer it (pick answer from possible options in the tactile representational symbol based response bank) if they know the correct answer. Otherwise, they should keep passing the papers as many as times as is necessary. Once students receive a paper with an answer already on it, they can either write “Agree,” if they think the answer is correct, or “Disagree,” if they think the answer is incorrect (tactile representational symbols with corresponding stickers for “agree” or “disagree”). If they write “Disagree,” they also need to provide the answer they believe is correct. You can provide the answers to any questions that cannot be answered by students.
5. **Extension:**

Take the class to a local garden or greenhouse for a field trip. Allow students to take pictures of their favorite plants or flowers. Use those pictures to create a class scrapbook that focuses on plant parts (Alert and engage student via sensory stimuli/input—auditory, visual, smell, taste, touch related to the content). Each student should have a page in the scrapbook (use tactile symbols paired with physical manipulation of actual plant parts or objects). On their pages students should include the picture of their favorite plant or flower, and each of the plant parts should be labeled (stickers with actual plant part adhered or tactile object adhered). Have students write in the function of each plant part column (using tactile objects/manipulative that represent vocabulary focusing on critical function, from an object bank) as well. If you are unable to go to a local garden or greenhouse, have students look for their favorite plants and flowers on the Internet. If necessary, students can substitute printed pictures from the Internet for the photos.