**STARTALK LEARNING PLAN**

**Designing Learning Experiences**

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**Date:** -  
**Grade Range:** 9-12/13-14  
**Targeted Performance Level:** Intermediate High/Advanced  
**Total Time for this Plan:** 2x90 min

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**Curriculum Connection**

**Program Can-Do Statement & Performance Assessment Task**

*Copy the specific program Can-Do Statement from the curriculum (stage 1) and performance assessment task (stage 2) that you are working toward in this learning plan.*

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**Program Can-Do Statement:**

This section has been left blank since this learning plan does not directly connect to the curriculum.

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**Performance Assessment Task:**

- **Topic:** Jaipur Foot:
  - “जयपुर पाँव- जयपुर पाँव की जनसेवा – विकलांग जनों के भुगतन से”
  - “Jaipur paaN- Jaipur paaNv kee jansevaiN -vikalaang janoN ke muNh se”

- **Video:** 5, 6 and 7

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**Learning Episode #1**

**Number of minutes for this episode:** _____

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**Lesson Can-Do Statement**

Identify the lesson Can-Do Statement(s) from the curriculum (stage 3) that are the goals for this learning episode.

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**Vocabulary**

How are culture and/or content part of the language chunks and words that learners will use?

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**Check for Learning**

What formative task will learners do to provide evidence that they met the lesson Can-Do Statement?

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**Students are introduced to the main objective of BMVSS’s physical and socio-economic rehabilitation of the physically disabled especially the economically backward. Hence they may lead a life of dignity and become productive members of the community. BMVSS also conducts scientific and technical research to develop aids for the physically challenged. It organizes workshops and seminars for dissemination of their knowledge and expertise related to the manufacture of such products. Students will be able to know about:**

- **Vocabulary/Definition**
- **characteristics and features that are important for a prosthetic leg.**

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**Video:** 5, 6 and 7
Learning Experiences
What sequence of activities will learners engage in before they complete the check for learning for this episode? How will learners move through a cycle of input, sharing, guiding, and applying in each episode? Consider how you might differentiate in order meet the needs of all learners.

Introduction/Motivation:
Teacher will ask few questions from the students about prosthesis or Artificial Foot before showing the video:

- Q. What is a prosthesis?
  Answer: An artificial body part that replaces a missing body part.
- Q. Who might need a prosthesis?
  Answer: Many people are in need of various types of prosthesis, including injured soldiers and people who have been in accidents or born handicapped.
- Q. Who design the prostheses and why?
  Answer: Biomedical engineers design prostheses for those amputees so that they can lead a normal life as others.

After asking the questions, teacher will show the video to the students related with "Bhagwan Mahaveer Viklang Sahayata Samiti" (BMVSS) a Jaipur-based non-profit organization. Teacher will show few technical words through power point to introduce vocab words.

Video # 5 Link: जयपुर पाँव- जयपुर पाँव की जनसेवाएँ - विकलांग जनो के मूह से:-

Power Point Link:-

Activity:
During watching the video students will list the technical vocabulary words/definition, characteristics and features that are important for a prosthetic like:

Vocabulary/Definitions

**Amputee/अंपांग**: एक व्यक्ति जो एक अंग निकाल दिया गया है।

**bioengineering/बायोइंजीनियरिंग**: शरीर के क्षतिग्रस्त या अनुपस्थित हिस्सों, जैसे कृत्रिम अंग और ह्यूमन पेसमेकर को बदलने के लिए कृत्रिम अंगों का उपयोग।

**biomedical engineer**: एक व्यवसायिक जिसमें कृत्रिम शरीर के अंगों को डिजाइन करना शामिल है।

**engineer/इंजीनियर**: एक व्यक्ति जो मानवता और हमारी दुनिया के लाभ के लिए चीजों को बनाने के लिए विज्ञान और गणित की अपनी समझ को लागू करता है।

**artificial limbs/prosthesis/कृत्रिम अंग**: एक लापता शरीर को बदलने के लिए एक कृत्रिम शरीर का हिस्सा। बहुवचन: कृत्रिम।
Students will know about the main objective of BMVSS’s physical and socio-economic rehabilitation of the physically disabled especially the economically backward. Hence they may lead a life of dignity and become productive members of the community.

Students will know about vocabulary/Definition and characteristics and features that are important for a prosthetic leg.

Materials Needed
What authentic resources, supplies, and other materials will you need to successfully implement this learning episode?

- Introduction/Motivation related to the set of questions mentioned earlier.
- Internet
- Video # 5 Link: जयपुर पाँव- जयपुर पाँव की जनसेवाएँ - विकलांग जनों के मुँह से:-
- Power Point Link:- For new related vocabulary
- Paper, Pencil,

Learning Episode #2
Number of minutes for this episode: ____

Lesson Can-Do Statement
Identify the lesson Can-Do Statement(s) from the curriculum (stage 3) that are the goals for this learning episode.

Vocabulary
How are culture and/or content part of the language chunks and words that learners will use?

Check for Learning
What formative task will learners do to provide evidence that they met the lesson Can-Do Statement?

- I can exchange information and ideas of various timeframe issues, experiences related to perspectives and practices concerning medical and healthcare related to “Jaipur Foot”
- I can discuss the benefits of technological advances made by “Jaipur Foot”
- I can participate in a discussion about the “Jaipur Foot” reform issues.
- I can exchange complex professional information about “Jaipur Foot” to address a collaborative community project.

The Jaipur Foot, also known as the Jaipur Leg, is a rubber-based prosthetic leg for people with below-knee amputations. ... Designed in and named after Jaipur, India, the prosthetic leg was designed to be inexpensive, water-resistant, and quick to fit and manufacture.

Vocabulary:
- जयपुर पाँव, सांस्थिक, बैठो, विकलांग,
- ट्राइसाइकिल, उपयोग, संस्था, दूर्घटना, संस्था, कृत्रिम पैर, पहनकर, विशेषताएँ, बैठो,
- Jaipur Foot, Interview, Patients, Disabled, Tricycle, Usage, Institution, Accident, Artificial Legs, Wearing, Attributes, Sit,

Sentence structure connective words and chunk:
- मगर, क्योंकि, इसीलिए, और...
- उक्ति बैठो - पालती मारकर बैठो,
- पेड़ पर बढ़ना - साइकिल बढ़ना
- तरह नमाज पढ़ना - काम पर जाना

Learning Experiences
What sequence of activities will learners engage in before they complete the check for learning for this episode? How will learners move through a cycle of input, sharing, guiding, and applying in each episode? Consider how you might differentiate in order meet the needs of all learners.

Video # 5 Link: जयपुर पाँव- जयपुर पाँव की जनसेवाएँ - विकलांग जनों के मुँह से:-
jayapur paanv- jayapur paanv kee janasevaain - vikalaang janon ke munh se:-
Teacher will show the video to the students. After watching the video, the students can practice the language forms, vocabulary and sentences as seen in the video. Students will discuss, re-tell and complete activity exercises during this stage.

**Activity in Group: Video Jigsaw:-**

Have students discuss in pairs or groups what they think happens next. They will watch an interview or still pictures of a person from the organization narrating their age, incident, features.

**Procedure:**

Teacher will play a short clip of video and get students to ask or answer questions about the character, including: age, job, personality, disabilities and areas of expertise. To elicit further discussion, they can discuss their points in groups justifying their opinions.

Teacher will put students in three groups, labelled A, B and C. in an engaging activity for students to play a game. Each group watches three different videos. Then each group will be provided a set of questions as below for which they will write down the answer to each question.

**Factory worker’s Interview:-**

**Video # 1 Clip: Group “A”**

1. **ट्राइसाइक्लिक विद्यालय के साथ व्यक्ति साक्षात्कार:- Interview with Trycycle person:**

   - **Q.** अपने वीडियो में क्या देखा? What did you watch in the video?
     - **A.** हमने देखा कि……………..
   - **Q.** ट्राइसाइक्लिक़ विद्यालय के साथ साक्षात्कार में क्या बता रहा था? ट्राइसाइक्लिक व्यक्ति क्या है? इसका उपयोग क्या है? What was the person sitting on the Tricycle telling in the interview? What is tricycle? What is the use of the tricycle?
     - **A.** वह बता रहा था कि इसका उपयोग
   - **Q.** विकल्पों की मदद कहां पर की जाती है? Where do you find help for disabled people?
     - **A.** विकल्पों की मदद की जाती है?
   - **Q.** सतीश का जीवन क्यों और कैसे बदले? Why and how did Satish life change?
     - **A.** सतीश का जीवन…………….बदला
   - **Q.** जयपुर फुट संस्था समाज के तरक्की के लिये क्या कदम उठा रही है? What steps are being taken by Jaipur foot for the progress of the community?
     - **A.** जयपुर फुट संस्था समाज के के तरक्की के लिये………………उठा रही है

**Video # 2 Clip: Group “B”**

2. **बालजिंडर सिंह के साथ साक्षात्कार: Interview with Baljinder Singh:**

   - **Q.** बालजिंडर सिंह कौन है? Who is Barlajdar Singh?
     - **A.** बालजिंडर सिंह………………
   - **Q.** उसका पैर कैसे कटा? How did he loose his limb?
     - **A.** उसका पैर……………..कटा
   - **Q.** उस समय उसकी उम्र क्या थी? अब वह कितने वर्ष का है? What was his age at that time? What is his age now?
     - **A.** उस समय उसकी उम……………..थी अब वह कितने वर्ष………… का है
   - **Q.** बालजिंडर सिंह के परिवार में कौन-कौन है? Who all are there in Baljinder Singh's family?
     - **A.** बालजिंडर सिंह के परिवार में…………….. है
   - **Q.** उन्हें पहली बार एक बीट्रूम पॉव कब लगा था? When did he get his first artificial leg?
     - **A.** उन्हें पहली बार एक बीट्रूम पॉव……………..लगा था
Q. जयपुर फूट संस्था समाज के के तरक्की के लिये क्या कदम उठा रही है? What steps are being taken by Jaipur foot for the progress of the community?
A. जयपुर फूट संस्था समाज के के तरक्की के लिये…………………………………………… उठा रही है

Video # 3 Clip: Group “C”

3. फैक्टरी के कर्मचारी धरमवीर के साथ साक्षात्कार:- Interview with Dharmavir of factory worker:

- Q. धरमवीर अपने कृत्रिम पांव की सहयोग से क्या कर सकता था? What could Dharamveer do with the help of his artificial limb?
  A. धरमवीर अपने कृत्रिम पांव की सहयोग से……………………सकता था
- Q. जयपुर पांव की विशेषताएं क्या-क्या हैं? What are the features of Jaipur foot?
  A. जयपुर पांव की विशेषताएं………………………… है
- Q. जयपुर पांव संस्था का नाम क्या है? What is the name of Jaipur foot institution?
  A. जयपुर पांव संस्था का नाम………………………… है
- Q. फैक्टरी में लोग क्या कर रहे थे? What were people doing in the factory?
  A. फैक्टरी में लोग………………….कर रहे थे
- Q. जयपुर फूट संस्था समाज के के तरक्की के लिये क्या कदम उठा रही है? What steps are being taken by Jaipur foot for the progress of the community?
  A. जयपुर फूट संस्था समाज के के तरक्की के लिये……………………………………. उठा रही है

This time students are put in new groups who are made up of one student from each of the original groups (grouped together like):

Group-1 will have students from A, Band C, similarly group 2 & 3 will have students from each group). They retell their part of the video to the others in their new groups. Later teacher will play the video again for students to watch the complete video to verify if they were right.

Materials Needed
What authentic resources, supplies, and other materials will you need to successfully implement this learning episode?

- Internet
- Paper, Pencil
- Set of questions
- Video # 5 Link: जयपुर पांव- जयपुर पांव की जनसेवाएं - विकलांग जनों के मुँह से:-
- Video # 1 Clip: Group “A”
  Interview with Tricycle person: Card with set of questions
- Video # 2 Clip: Group “B”
  Interview with Baljinder Singh: Card with set of questions
- Video # 3 Clip: Group “C”
  Interview with Dharmavir a factory employee: - Card with set of questions

Learning Episode #3

Lesson Can-Do Statement
Identify the lesson Can-Do Statement(s) from the curriculum (stage 3) that are the goals for this learning episode.

- I can deliver detailed presentations incorporating data from statistics and analysis of “Jaipur Foot” that I have studied.

Vocabulary
How are culture and/or content part of the language chunks and words that learners will use?

Culture and content:-
The Jaipur Foot is made of polyurethane, which at the time was the new material used in the production of the prostheses. The material increases the durability and the convenience of use.

Check for Learning
What formative task will learners do to provide evidence that they met the lesson Can-Do Statement?

Students will be able to understand:

- Describe the steps and considerations that go into developing prostheses.
I can present an explanation about “Jaipur Foot” to the degree to which this institution supports the family and family values by supporting the handicapped.

The materials used at the foot-end are waterproof and moderately mimic a real foot. These features help a physically-challenged person assimilate more easily in a semi-urban or rural setup in the Indian subcontinent and other developing countries.

Vocabulary:
- मुसीबत, ऊपर, नीचे, शुल्क, वैस खी व्हील चेयर, च य की दुक न, ह थ पैिललांग - ह थ से चलने व ली मशीन, कवर, अनतररक्त किल्म, तळबजली क चूल्ह, तपमान हिग्री, ट्रेडिंग, मॉल्स में डालन, कान गुब्बा र, ह्िी की जगह, ब हर कटन, म ांसपेलशयों क दहस्स, ढ लन, रोगी की त्वच, स्तांभ क आक र, क्लीांक्जांग किल्म, नेगेदटव क स्ट, ल इनर, प्ल स्टर ऑि पेररस, त्रेडिंग, मॉल्स में ढ लन
- Trouble, Above, Under the knee, Free Vaisakhi Wheel Chair, Tea Shop, Hand paddling-hand-running machine, Cover, Additional Film, electric owen, Temperature 180 degrees, Thawing, Molded in molds, Ear-hearing machine, Seat, Structure, Balloon, Place of Bone, Cutting out, Part of muscle, Mold, Patient’s skin, Size of column, Cleingen film, Negative cast, Liner, Plaster of Paris

Language Structure:

Learning Experiences
What sequence of activities will learners engage in before they complete the check for learning for this episode? How will learners move through a cycle of input, sharing, guiding, and applying in each episode? Consider how you might differentiate in order meet the needs of all learners.

Teacher will speak with the students about their prior knowledge which they learnt in prior session in video 5.

Now teacher will ask few questions related to the techniques of making artificial limbs or prosthesis.

- Q. What are some of the important features required for a good prosthetic leg?
  
  Answer: The most important characteristics are strength, durability, longevity, shock absorption, and comfort.

- Q. Who design the prostheses and why?
  
  Answer: Biomedical engineers with help of research design new ways to create prosthetic legs that have all the salient characteristics to help the handicapped.

- Q. Who made this prostheses for community?
  
  Answer: Factory workers and engineers.

After the question/answer session teacher will show another video 6 and 7 related with techniques of manufacturing artificial limbs or prosthesis. Students will watch the short clips and teacher will provide to each student set of questions related with the video clip.

Activity: In Pair:

After watching the video students will practice the language forms, vocabulary and sentences encountered in the video. They will discuss the given questions with their team based on what they watched in the video:

Video # 6 Clip : Guided Questions:- 5 min.

प्रश्न: जयपुर पाँव संस्था - कृतिम पैर के लिये:-
Materials Needed
What authentic resources, supplies, and other materials will you need to successfully implement this learning episode?

- Internet
- Video #6 & 7 Clip: jayapur paanv- jayapur paanv kee janasevaain - vikalaang janon ke munh se:-
  Related technology of artificial limbs or prosthesis.
- Guided Questions

Learning Episode # 4  
Number of minutes for this episode: ____
Lesson Can-Do Statement
Identify the lesson Can-Do Statement(s) from the curriculum (stage 3) that are the goals for this learning episode.

<table>
<thead>
<tr>
<th>Lesson Can-Do Statement</th>
<th>Vocabulary</th>
<th>Check for Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can present report about challenges faced by disabled member or communities.</td>
<td>These features help a physically-challenged person assimilate more easily in a semi-urban or rural setup in the Indian subcontinent and other developing countries</td>
<td>Students will be able to design and create own prosthetic lower legs!</td>
</tr>
<tr>
<td>I can present a “Model of Jaipur Foot” and detail descriptions of factual nature on information related to promoting positive health behaviors.</td>
<td>Vocabulary:- जयपुर फुट का चेयर, वैसाक्षी विंग चेयर, क्रिकेट आउटफोर्स, वैक्सी चेयर, पेररसको फिल्म, पेररसको डिटेल्स, पेररसको मोड, पेररसको सेट, पेररसको ब्रिटीश, पेररसको फ्लाइट, पेररसको विजेली Owen28, हार्म, मोर्ट, टाप्मान 180 डिग्री, पेशेंज़, मोर्टस में ढाला, कान सुनने की मशीन, सीट, संरचना, वृक्षारोपण, हड़ी की जगह, बाहर कटना, मांसपेशियों का हिस्सा, दांत, रोगी की त्वचा, स्तम्भ का आकार, क्लिङ्गिंग फिल्म, नेगेटिविंग कार्ट्र, लाइम, प्लास्टर ऑफ पेररस trouble, above, Under the knee,free Vaisakhi Wheel Chair, tea Shop, hand paddling-hand-running machine, Cover, Additional Film, electric oven, Half, thick, temperature 180 degrees, thawing, molded in molds, ear-hearing machine, Seat, Structure, balloon, Place of Bone, Cutting out, Part of muscle, mold, patient’s skin, Size of column, Cleingen film, Negative cast, Liner, Plaster of Paris</td>
<td>They will test out prototypes by bending a knee and resting it on the prosthesis. Students will present all the important features that they learnt. They will figure out some way to connect the prostheses to a body. They will develop using everyday, around-the-house materials.</td>
</tr>
<tr>
<td>I can write about proposed solutions to healthcare issues and inequities based on knowledge gained about these issues and related to cultural perspectives.</td>
<td>- मरीज को बैठाया जाता है, क्लिङ्गिंग फिल्म लगाया जाता है, माप की जाती है, मोज़ा जाता है, लपेटा जाता है, आकार देते हैं, काटकर निकाल देते हैं, किया जाता है....</td>
<td></td>
</tr>
</tbody>
</table>

Learning Experiences
What sequence of activities will learners engage in before they complete the check for learning for this episode? How will learners move through a cycle of input, sharing, guiding, and applying in each episode? Consider how you might differentiate in order meet the needs of all learners.

Video #6 and 7:- कृत्रिम पैर या कृत्रिम अंग बनाने की तकनीक - (technique of artificial limbs or prosthesis)

Teacher will repeat the video #6 clip and will demonstrate the steps or the techniques to develop artificial limbs or prosthesis in the factory. During watching the video students will take notes of steps to develop artificial limbs or prosthesis. Like:-

जयपुर पैर संस्था की कृत्रिम पैर बनाने की क्रमशः विधि:-

1. मरीज को बैठाया जाता है।
2. पैर के चारों तरफ क्लिङ्गिंग फिल्म लगाया जाता है।
3. कृत्रिम अंग की माप की जाती है।
4. स्तम्भ के चारों ओर की हड़ीयों को मारकर Markar चिन्ह लगाया जाता है।
5. प्लास्टर ऑफ पेररसको गाँठ पट्टी पर बिछाकर मोझा जाता है।
6. पट्टी को पानी में बुझाकर गोला करते हैं।
7. पैर विनिर्देश में सूखने के बाद उसको निकाल लेते हैं।
8. जिससे स्तम्भ का माप मिल जाता है।

STARTALK Learning Plan (2018)
Pre-Activity Assessment: Discussion/Brainstorming:

After watching the video as a class, have students engage in open discussion. Solicit, integrate and summarize student responses. Give prompts as necessary. Remind students that in brainstorming, no idea or suggestion is "silly." All ideas should be respectfully heard. Teacher will encourage the students for wild ideas and discourage criticism of ideas. Have students raise their hands to respond. Record their ideas on the board.

Teacher will ask few questions to the students:-

• Q. How can you achieve some of these qualities, using the provided resources?
  Possible Answers: Use the plunger head for a comfortable knee support, use rope or duct tape for connection to the body, use tube or pipe or wood for strong and sturdy support.

• Q. What are some important features required for a good prosthetic leg?
  Possible Answers: The most important characteristics are strength, durability, longevity, shock absorption, lifelikeness and comfort.

Today, we will be biomedical engineers, and design and create our own prosthetic lower legs! Then we will test our prototypes by bending a knee and resting it on the prosthesis. Our goal is to provide all the important features that we talked about. Then, we'll figure out some way to connect our prostheses to a body. Since we do not have real manufacturing equipment, we will use some everyday, around-the-house materials.

Activity: In Group: create our own prosthetic lower legs!

• Gather materials and make copies of the Prosthetic Worksheet, to each student.

• Review the attached, three-page Images of Example Prototype Prostheses for how students might create their own prostheses, and ideas to address comfort and lifelikeness.

Teacher will explain to the students that when engineers design a new or improved product, they work in groups and follow the steps of the engineering design process like:-

a) communicate and make a plan to describe the idea,

b) create or build a prototype or model of the design, and

c) evaluate what you have made.

1. Teacher will divide the class into the group so each has a different structural prosthetic material.

2. Teacher will assign teams different material resources with which to construct their prostheses. Make available other materials for the students to consider incorporating into their design.

3. Hand out worksheets and have students follow along with its questions throughout the activity.

4. Have students discuss ideas within their groups, while completing the first page of the worksheet.

5. Have each group choose one teammate for whom to make the prosthesis. So that the prosthesis fits him/her, measure that student’s lower leg from where it bends at the knee.

6. Have students discuss ideas within their groups, while completing the first page of the worksheet.

7. Have each group choose one teammate for whom to make the prosthesis. So that the prosthesis fits him/her, measure that student’s lower leg from where it bends at the knee.

8. Have students collect other materials, such as tape and string, and begin creating their prototypes, creatively addressing the requirements of strength, stability, durability, longevity, shock absorption, lifelikeness, comfort, etc.

9. After all teams are finished, have each group present its prosthesis to the rest of the class, explaining the
design concepts and material choices, as well as demonstrating the prototype's strength by having the teammate use it to walk (while bending his/her knee and wearing the prosthesis).

10. Conclude with a class discussion using the questions provided in the Assessment section.

Presentation and suggestions:

Have each group present their prosthetic lower leg. Have them include the following in their presentations:

- List of materials and purpose of each
- How they came up with the design
- Important design features
- Estimated cost
- Demonstration of use

Concluding Discussion Questions. Teacher will ask the students:

- What improvements would you make to your prototype prosthesis?
- What other materials and fasteners would help improve your design?
- What would be different if you had to make the whole leg, including the knee?
- What design constraints or limitations might be different for biomedical engineers developing real prostheses?

Activity Assessment: Have students complete the activity worksheet and teacher will review their answers to know about design and create own prosthetic lower legs!

Materials Needed

What authentic resources, supplies, and other materials will you need to successfully implement this learning episode?

- Video # 6 and 7: कृ त्रिम पैर या कृ त्रिम अंग बनाने की तकनीक - (technique of artificial limbs or prosthesis)
- Handout: प्रोटोटाइप प्रोस्थेस का चित्र
- yardstick, ruler or tape measure, for measuring
- scissors
- Prosthetic worksheet
- 1 type of prosthetic structural material with which to create a prototype
- 1 roll duct tap
- Provide a variety of prosthesis structural material resources
- For leg structure: toilet plungers (unused), plastic pipes, metal pipes, metal strips, cardboard tube (from wrapping paper roll), wooden "2 x 4," thin metal duct material (to be rolled and taped into a tube shape), all generally 1.5 ft (or .46 m) long
- For comfort: large sponges, scrap bubble wrap, scrap cardboard, etc.
- bath towels, pairs of pants, shoes (use students')
- For body attachment: string, rope, twine (about 30 ft [or 10 m])

Add additional learning episodes as needed by copying a learning episode box.

Post-Lesson Reflection

After implementing this learning plan, consider the following questions while reflecting on the successes and challenges of the lesson:

- What were the strength of the lesson? Which activities helped to maximize the learning?
- Did all learners meet the goals of the lesson? Why or why not?
- What could you do to improve this learning plan if you address these lesson Can-Do Statements again?