

Project TTAP: Technology Team Assessment Process

TECH ACCESS

Technology Assessment for Computer Capability for the Education of Special Students

TECH ACCESS is a tool which may be used during a technology assessment to record observations and comments about the child's ability to use various inputs including switch, touch tablet, and keyboard. General statements about the child's behavior, performance, interaction with people, equipment, software, and other events may also be recorded on the form. Recommendations for input based on strengths and weaknesses of each input method may be made based on information from this form.

Any technology assessment team member can use TECH ACCESS to record detailed observations of the child's abilities for input and interaction during the assessment activities. The form may be used during the assessment, immediately after the assessment, or while viewing the assessment videotape. Not all team members need to complete a TECH ACCESS form; however, at least two individuals should be assigned to keep records on the form for comparisons. Observations can be made during the assessment or while viewing videotapes at a later date.

TECH ACCESS does not need to be used sequentially. One may assess the three input methods in any order. For many children, only one or two methods will be suitable; therefore, TECH ACCESS may not be used in its entirety. Decisions on the starting point are based on the nature of the information gathered from the child's background information and a videotape showing the child engaged in a routine activity (eating, playing, interacting with others). TECH ACCESS was designed for ease of use with a check mark system and additional space for comments.

TECH ACCESS has two parts. Part I is the Input Assessment. Part II contains the Recommendations. In Part I, the observer checks the most appropriate answer(s) for each item that applies to the child and comments on the strengths and weaknesses after the selected input (Switch, Touch Tablet, or Keyboard) is chosen. TECH ACCESS allows team members to easily identify recurring events in terms of frequency, potency, seeming effects and consequences. On the basis of the answers in Part I and the method of input selected, the observer completes the Part II Recommendations, checking answers that apply in that section and providing additional answers as needed. This information is used in writing the final report and making recommendations for the child and family.

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ID#: _____

Child's Name: _____

Date of Assessment: _____

Observer: _____

Directions: Use TECH ACCESS to record your observations of specific aspects of a child's ability to use various forms of input. This instrument does not measure a child's ability to use specific software. However any developmentally appropriate software can be integrated into the TECH ACCESS administration. TECH ACCESS may be completed during the assessment, immediately after the assessment or while viewing the assessment videotape.

First complete the section on determining the reliable movement. Check the most appropriate answer(s). Based on reliable movement or control checked previously, respond to the corresponding section (e.g. hand). Check only the area that is most reliable. Then continue to the desired input method which will be assessed first. TECH ACCESS does not need to be used sequentially; you may assess the three input methods in any order.

Check the most appropriate answer(s) for each item that applies to the child. R and L are designated for right and left. Check all items that apply. If an action or behavior does not occur or the section is not appropriate, select NA. Include comments where needed.

On the basis of the answers in Part I and the method of input selected, the observer completes the Part II Recommendations, checking answers that apply in that section and providing additional answers as needed. This information is used in writing the final report and making recommendations for the child and family.

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Part I: Input Assessment

Reliable

Determine the reliable movement. Based on the answers selected for questions 1 - 11, continue with desired input method (switch, touch tablet, keyboard).

*Throughout this form, the thumb is designated as 1, the index finger as 2, the middle finger as 3, the ring finger as 4, and the little finger as 5,

1. Reliable movement or control:

R	L		1	2	3	4	5
—		Finger(s)	1	2	3	4	5
	—	Finger(s)	1	2	3	4	5
—	—	Hand					
—	—	Arm					
—	—	Trunk: Right/Left side					
—	—	Leg					
—	—	Knee					
—	—	Foot					
—	—	Head: Right/Left side					
—	—	Chin					
—	—	Facial Feature/Mouth					
—	—	Other (describe):					

Based on reliable movement or control checked previously, respond to the corresponding section:

Hand

2. With right/left hand, child can:

R	L	
	—	NA
—	—	Squeeze and release
—	—	Squeeze, but not release
—	—	Press and release
—	—	Press, but not release
—	—	Wave hand back and forth
—	—	Pull
—	—	Move in up, down, right, & left directions
—	—	Operate paddle
—	—	Other (describe):

Arm

3. With right/left arm, child can:
- | | | |
|-----|-----|-------------------|
| | ___ | NA |
| R | L | |
| ___ | ___ | Press and lift |
| ___ | ___ | Press only |
| ___ | ___ | Lift only |
| ___ | ___ | Swing laterally |
| ___ | ___ | Swing vertically |
| ___ | ___ | Push forward |
| ___ | ___ | Other (describe): |

Comments:

Trunk

4. With trunk, child can:
- | | | |
|-----|-----|---------------------|
| | ___ | NA |
| R | L | |
| ___ | ___ | Press with ___ side |
| ___ | ___ | Lean forward |
| ___ | ___ | Lean backward |
| ___ | ___ | Other (describe): |

Comments:

Leg

5. With right/left leg, child can:
- | | | |
|-----|-----|-------------------------------|
| | ___ | NA |
| R | L | |
| ___ | ___ | Press toward ____ side |
| ___ | ___ | Squeeze right leg to left leg |
| ___ | ___ | Squeeze left leg to right leg |
| ___ | ___ | Lift leg |
| ___ | ___ | Other (describe): |

Comments:

Foot

6. With right/left foot, child can:
- | | | |
|--|-----|----|
| | ___ | NA |
|--|-----|----|

R	L	
—	—	Press foot
—	—	Press right/left side
—	—	Lift front toes
—	—	Push heel
—	—	Other (describe):

Comments:

Head

7. With right/left side of head, child can:

	—	NA
R	L	
—	—	Press switch
—	—	Other (describe):

8. Child can

—	NA
—	Raise head
—	Lower head
—	Other (describe):

9. Child can move head most comfortably:

—	NA
—	Tilt side to side
—	Nodding (as in "yes")
—	Turning (as in "no")
—	Other (describe):

Comments:

Chin

10. With chin, child can:

—	NA
—	Press downward
—	Other (describe):

Comments:

Facial Feature/Mouth

11. Child can:
- NA
 - R L
 - Lift eyebrow
 - Use tongue
 - Sip
 - Puff
 - Other (describe):

Comments:

Single Switch Input

- NA

If Switch Input is not appropriate for child, move to Touch Tablets:

Motor Skills

12. Motor problems which make switch use difficult:
- None
 - Slow motor response
 - Too much concentration required for motor task
 - Weak control of reliable movement
 - Reflex movements interfere with appropriate switch use
 - Tremor
 - Half of response (e.g. press or release) is unreliable
 - Other (describe):

Comments:

Cognitive Skills When Using A Switch

13. Child demonstrates understanding cause and effect concepts:
- Randomly presses switch with no apparent intent
 - Presses switch with possible intent
 - Presses switch with intent to cause battery operated device or computer program to operate
 - Presses a switch with timer attached with intent to enjoy activity for 15 seconds or more
 - Other (describe):

14. Child demonstrates intentional switch pressing:
- Presses switch randomly
 - Presses switch at appropriate time without cuing
 - Presses switch at appropriate time with visual cue
 - Presses switch at appropriate time with auditory cue
 - Other (describe):
15. Child uses visual scanning. After seeing the cue, the child:
- Presses switch randomly
 - Chooses between two switches to make selection
 - Presses switch to select one item
 - Presses switch to make selection from two items
 - Presses switch to make intentional selection from three or more items
 - Other (describe):
16. Child uses auditory scanning. After hearing the cue, the child:
- Presses switch randomly
 - Chooses between two switches to make selection
 - Presses switch to select one item
 - Presses switch to make selection from two items
 - Presses switch to make intentional selection from three or more items
 - Other (describe):

Comments:

17. Child demonstrates intent to communicate:
- To initiate action
 - After auditory cue to initiate the scan, then presses to select an item from the scanning array
 - After visual cue to initiate the scan, then presses to select an item from the scanning array
 - To activate a specific item when highlighted in a scanning array
 - By pressing the switch a second time to achieve an intended out-come
 - Other:

Comments:

Perceptual Skills When Using a Switch

18. Visual-motor:

- Looks at toy or monitor while activating switch
- Looks down at switch while pressing
- Has extension thrust (pressing switch causes head to push back or turn away)
- Other (describe):

Comments:

Switch input strengths:

Switch input weaknesses:

Touch Tablet Input

NA

If Touch Tablet Input is not appropriate for child, see Switch or Keyboard Input.

Physical Skills

19. Child can activate:

- Entire touch tablet surface
- Upper half of touch tablet
- Right side of touch tablet
- Left side of touch tablet
- Lower half of touch tablet
- Other (describe):

20. With right/left hand, child can use:

R	L					
<input type="checkbox"/>	<input type="checkbox"/>	Open hand with full finger usage				
<input type="checkbox"/>	<input type="checkbox"/>	One finger input	1	2	3	4 5
<input type="checkbox"/>	<input type="checkbox"/>	One finger input	1	2	3	4 5
<input type="checkbox"/>	<input type="checkbox"/>	Muti-finger	1	2	3	4 5
<input type="checkbox"/>	<input type="checkbox"/>	Muti-finger	1	2	3	4 5
<input type="checkbox"/>	<input type="checkbox"/>	Open hand; fingers move together as in scooping motion				

- Open hand; palm usage only
- Clenched hand; palm usage
- Clenched hand; uses joints of bent fingers to operate tablet
- Other (describe):

21. Child can:
- Exert appropriate pressure to operate tablet
 - Exert pressure to operate tablet most of the time
 - Exert pressure to operate tablet some of the time
 - Not exert enough pressure to operate tablet
 - Other (describe):

Comments:

22. Motor problems which make touch tablet operation difficult:
- None
 - Unable to lift hand off tablet after activating
 - Unable to exert enough pressure
 - Unable to reach to top of touch tablet
 - Unable to cross midline
 - Other (describe):

Perceptual Skills When Using a Touch Tablet

23. Visual Discrimination:
- Able to visually identify all activating areas
 - Able to visually identify limited activating areas
 - Able to identify and activate tactile overlay
 - Unable to identify activating areas
 - Other (describe):
24. Visual-motor processing:
- Able to watch monitor while activating device
 - Need to concentrate on hand movement and pressing as device is being activated
 - Other (describe):

Comments:

Touch tablet input strengths:

Touch tablet input weaknesses:

Keyboard Input

__ NA

If Keyboard Input is not appropriate for child, move to Switch Input or Touch Tablet Input depending on child's abilities:

Physical Skills

25. Reliable movement or control with right/left hand:

R	L							
__		One finger input	1	2	3	4	5	
	__	One finger input	1	2	3	4	5	
__		Multi-finger	1	2	3	4	5	
	__	Multi-finger	1	2	3	4	5	
__		Other (describe):						

26. Range of motion with right/left hand:

R	L	
__	__	Entire keyboard
__	__	Upper half keyboard
__	__	Right half of keyboard
__	__	Left half of keyboard
__	__	Lower half keyboard
__		Other (describe):

27. Child can do the following keyboarding skills:

R	L	
__	__	One finger keyboarding input with __ hands
__	__	Hand keyboarding with more than one finger
__		Keyboarding input with both hands
__		Other (describe):

28. Motor problems which make keyboard use difficult:

__ No problems

- Finger control
- Reflex movements
- Tremor
- Spastic (stiff-little movements)
- Athetoid (slow twisted movements performed involuntarily)
- Ataxic (Jerky)
- Flaccid (Floppy)
- Other (describe):

Comments:

29. Child's ability to operate keyboard:
- No problems
 - Motor concentration is needed to operate keyboard
 - Child needs assistance to operate keyboard
 - Other (describe):

Perceptual skills at keyboard

30. Visual discrimination at the keyboard:
- Able to pick out individual keys with no difficulty
 - Requires stickers or marked keys
 - Requires keyboard overlay
 - Overwhelmed by number and placement of keys
 - Other (describe):
31. Visual acuity:
- Able to see the letters on the keys with no difficulty
 - Requires more visual contrast in lettering on the keys
 - Requires overlay to divide keyboard into sections
 - Requires tactile or braille appliques to keys
 - Other (describe):
32. Visual-motor integration:
- Maintains visual attending to monitor during input
 - Looks for key on keyboard before pressing
 - Looks for key on keyboard; motor concentration necessary to press key
 - Other (describe):

Comments:

Keyboard input strengths:

Keyboard input weaknesses:

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Part II: Recommendations

Directions: Based on the answers to items in Part I select the recommended input method. Check all answers that apply in that section. Provide additional answers as needed. Use this information in writing your final report.

Recommendations for Switch Input

___ NA

1. Recommended switch for input:

2. Modifications of switch required:

- ___ Not applicable
- ___ Apply tactile material
- ___ Increase sensitivity
- ___ Customize switch

Suggestions:

3. Positioning of switch:

- ___ Not applicable
- ___ Placed on right side of table or child's tray
- ___ Placed on left side of table or child's tray
- ___ Placed at midline position of table or child's tray
- ___ Mounted onto wheelchair
- ___ Upright at an angle of 30 degrees
- ___ Upright at an angle of 60 degrees

- Other (describe):
4. Potential assistive devices/materials to help position switch:
- None
 - Switch holder
 - Switch mount
 - Tape
 - Dycem
 - Other:
5. Commercial source(s) for switch input (supply name, address, and cost):
6. Additional modifications needed for switch use:
7. Recommended type of scanning: (example manual, auto, one-at-a-time, group item)
8. Adaptations to make scanning use more effective: (example decrease rate method)
9. Long term goals (activities) for switch as an input method:

Recommendations for Touch Tablet Input

NA

1. Recommended touch tablet for input:
2. Possible adaptations to be made to alleviate motor problems:
 No problems
 Adaptive overlay
 Adaptive materials attached
 Positioning of touch tablet
 Other (describe):
3. Modifications of overlay required:
 Not applicable
 Visual division of tablet into appropriate operating areas
 Tactile division of tablet into appropriate operating areas
 Protective overlay required
 Decrease number of choices on overlay to _____.
 Increase number of choices on overlay to _____.
 Other (describe):
4. Adaptive materials attached:
 Not applicable
 Arm mount attached to tray or tablet for stabilization
 Wrist mount attached to tray or tablet for stabilization
 Position guard attached to touch tablet for child to hold during tablet operation to maintain correct hand/arm position
 Mounting pegs (or devices) with non-pliable material secured on top attached to overlays to alleviate "dead space" problems
 Other (describe):
5. Positioning of touch tablet:
R L
 Placed toward child's ____ side
 Upright at an angle of 30 degrees
 Upright at an angle of 60 degrees
 Directly in front of child on table or tray
 Not applicable
 Other (describe):

6. Commercial source(s) for touch tablet input (supply name, address, and cost):

7. Additional modifications needed for touch tablet use:
 - ___ Visual disability

8. Recommended activities for touch tablet use:

9. Long term goals (activities) for touch tablet as an input method:

Recommendations for Keyboard Input

___ NA

1. Potential assistive devices or materials to help with keyboarding:
 - ___ None
 - ___ Body restraint to stabilize hand
 - ___ Keyboard overlay or mask
 - ___ Finger mold (something attached to the hand like a pencil, pointer, or cast/mold with velcro)
 - ___ Moisture guard
 - ___ Keyguard
 - ___ Enlarged letter stickers on keys
 - ___ Tactile stickers on keys
 - ___ Other (describe):

2. Purpose of assistive device/material on the keyboard:
 - ___ Not applicable
 - ___ Stabilize finger, hand, or arm movement
 - ___ Enable child to press keys with a stylus via gripping motion
 - ___ Highlight operational keys either visually or tactilely
 - ___ Protect equipment
 - ___ Other (describe):

3. Outcome of assistive device/material use for the child:
 - ___ Not applicable
 - ___ Normal keyboard operation
 - ___ Keyboard operation with operational keys marked or highlighted
 - ___ Restrict number of keys in operation
 - ___ Keyboard operation with overlay

- Limited keyboard operation
- Other (describe):

4. Placement and positioning of device/material:

- | R | L | |
|---|---|--------------------------|
| — | — | Palm of hand |
| — | — | Wrist |
| | — | Not applicable |
| | — | Keyboard mount |
| | — | Table or tray mount |
| | — | Individual key mount (s) |
| | — | Other (describe): |

5. Recommended device/material for keyboard input:

6. Assistive device/material source for keyboard input:

- a. Commercial (supply name, address, cost):

- b. Homemade (attach detailed schematics for device, drawings or descriptions):

- c. Other (describe):

7. Recommended activities for keyboard use:

8. Long term goals (activities) for keyboard as on input method: