Visual Screening

Screen	Directions
Pursuits	• S: Student seated, head in midline. • D: Instruct student to keep head still and "follow my finger with your eyes" as you trace an "H" shape, encouraging the student to look up, down, and side to side. Move your finger to the extreme ends of the student's gaze to ensure that you test full ocular range of motion. Keep finger ~16 in. from the student's face throughout test. • R: Look for smooth movement of the eyes.
Saccades	• S: Student seated, head in midline. • D: Hold 2 different colored pens ~12 inches apart & ~16 inches from the student's face. Instruct student to look at the appropriate pen when you say the color. Have student alternate rapidly from looking at one pen to the other. Be sure student fixates directly on target before moving eyes to the next target. Repeat with the pens held in four different directions: vertical, horizontal, diagonal with right side higher, & diagonal with left side higher. • R: Note whether student is able to quickly switch visual focus from one target to the other.
Near-Point Convergence	• S: Student seated, head in midline. • D: Hold a pen upright ~16 inches from the student's nose. Instruct the student to keep his/her eyes on the top of the pen as you slowly bring the pen closer to the bridge of the student's nose. Ask the student to tell you when he/she sees two pens (or note when one eye deviates laterally). • R: Record how far the pen is from the nose at that time: normal value is 10cm or less.

Range of Motion Values

Neck/Trunk	Hip	Knee	Shoulder	Elbow	Wrist
Neck Flexion: 0-45°	Flexion: 0-125°	Flexion: 0-135°	Flexion: 0-180°	Flexion: 0-150°	Flexion: 0-90°
Neck Extension: 0-45°	Abduction: 0-45°	Extension: 135-0°	Abduction: 0-180°	Extension: 150-0°	Extension: 0-70°
Neck Rotation: 0-60°	Extension: 0-20°	**Ankle**	Extension: 0-60°	Pronation: 0-80°	Abduction: 0-25°
Neck Lateral Flexion: 0-45°	Internal Rotation: 0-45°	Plantarflexion: 0-50°	Internal Rotation: 0-70°	Supination: 0-80°	Adduction: 0-65°
Trunk Rotation: 0-45°	External Rotation: 0-45°	Dorsiflexion: 0-20°	External Rotation: 0-90°		
Trunk Side Bending: 0-35°					

Coordination

Test	Directions
Finger to Nose Test	• S: Student standing. • D: Ask student to raise arms out to the sides at shoulder level. Ask the student to slowly bring the index finger of the right hand to the nose, and return to the starting position; then bring the left index finger to the nose, and back to the starting position. Repeat 4 times with eyes open, and 4 times with eyes closed. • R: Note if the student is able to bring the finger to the nose without under or over-shooting; note difference with eyes open and closed. Also, note presence of postural or intention tremor.
Finger to Thumb Test	• S: Student sitting. • D: Ask the student to touch the pad of each finger to the thumb, starting with the index finger. Repeat 4 times on each hand. (Note: this test is appropriate for students aged 6 or older.) • R: Note student's ability to bring the fingers together in isolation (ie: not bringing all four fingers to the thumb at once).
Rapid Alternating Movements	• S: Student sitting. • D: Ask student to tap his/her thigh, first with the palm, and then with the back of the hand, rapidly alternating this movement 10 times. Test with each hand separately, and then together. • R: Note student's ability to maintain the rhythm and to move both hands together.
Heel to Shin	• S: Student sitting or supine. • D: Ask student to place the heel of the right foot on the left shin just below the left knee, and slide the heel along the shin from the knee to the ankle. Repeat 4 times on each side. • R: Note if student is able to bring heel to shin without over or undershooting, and is able to maintain contact with shin as he/she slides heel toward foot.

Proprioception

Test	Directions
Fingers and Toes	• S: Student seated in a comfortable position, eyes closed. • D: Support the hand or foot to be tested with one hand; with your other hand hold the digit to be tested on its sides, and wiggle it up and down. Randomly stop the movement with the digit in an up or down position and ask the student which direction the digit is pointing. Repeat 5 times. Avoid applying different pressures or using a different tone of voice on the up or down movement. • R: Note the percentage of times the student correctly identifies the digit position.
Arms and Legs	• S: Student in sitting (for testing arms) or supine (for testing legs), with the eyes closed. • D: Passively move the student's arm or leg through a small range of motion, then hold it in a static position. While holding the extremity in the static position, ask the student to duplicate the position with the opposite extremity. Alternately, after holding the extremity in the static position, you can return the extremity to the starting position, and ask the student to move the extremity back to the previous position. • R: Note the accuracy with which the student can imitate the position. You may measure the joint positions with a goniometer to improve reliability.

Sensation

Test	Directions
Light Touch	•S: Student seated in a comfortable position, with his/her eyes closed. •D: Use a piece of cotton or tissue to lightly touch or stroke the area being tested. Ask the student to indicate "yes" or "now" when the stimulus has been applied. Vary the time between touches. •R: Note the percentage of trials in which the student successfully indicates a stimulus has been applied.
Pressure	•S: Student seated in a comfortable position, with his/her eyes closed. •D: Use your fingertip to apply firm pressure to the skin's surface. Ask the student to indicate "yes" or "now" when the stimulus has been applied. Vary the time between touches •R: Note the percentage of trials in which the student successfully indicates a stimulus has been applied.

Reflexes

Test	Directions
ATNR	•S: Student in supine. •D, R: Observe movement of the arm on the face side as you passively rotate the head to one side. Repeat on the other side. •S: Student in quadruped •D, R: Observe flexion of the shoulder or elbow on the side opposite to the direction of passive head rotation. Repeat on the other side.
STNR	•S: Student in supine. •D, R: Note bending of the arms with passive cervical flexion; or flexion of the hips with passive cervical extension. •S: Student in quadruped •D, R: Note bending of the arms with passive cervical flexion; or flexion of the hips with passive cervical extension.

Tardieu Scale (Spasticity Measure)

Directions

Test is performed with the patient in supine, with head in midline.
Passive movement of the joint is evaluated at three velocities (V1, V2, and V3). Responses are recorded at each velocity (V) as X/Y, with X indicating the 0 to 5 rating, and Y indicating the angle at which the muscle reaction occurs.

Velocities: V1: move the limb segment as slow as possible (slower than limb dropping under gravity)
V2: speed of the limb segment falling under gravity
V3: move the limb segment as fast as possible (faster than limb dropping under gravity)

Scoring:
0 No resistance throughout the course of passive movement
1 Slight resistance throughout the course of passive movement, no clear catch at a precise angle
2 Clear catch at a precise angle, interrupting the passive movement, followed by a release
3 Fatigable clonus with less than 10 seconds when maintaining the pressure and appearing at a precise angle
4 Unfatigable clonus with more than 10 seconds when maintaining the pressure and appearing at a precise angle
5 Joint is immovable

Example: If, when extending the knee as slowly as possible (V1), a clear catch interrupts the passive movement at -70 degrees from full extension, followed by a release that allows further movement to -50 degrees from full extension, the Tardieu V1 would be reported as 2/-70

Legend: S = Starting Position; D = Directions; R: Result

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3. Scholtes VAB, Becher JG, Beelen A, Lankhorst GJ. Clinical assessment of spasticity in children with cerebral palsy: a critical review of available instruments. *Developmental Medicine and Child Neurology*; 2006; 48: 64-73.
4. Patrick E and Ada L. The Tardieu Scale differentiates contracture from spasticity whereas the Ashworth Scale is confounded by it. *Clinical Rehabilitation* 2006; 20: 173-182.