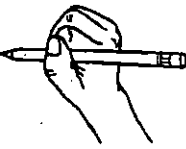
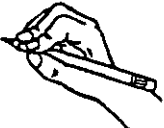

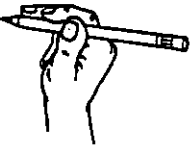

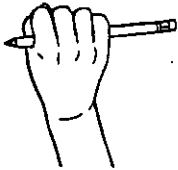
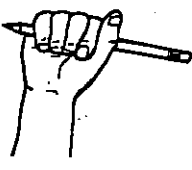
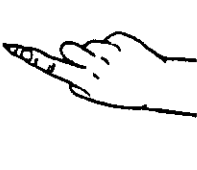
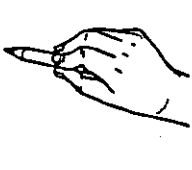
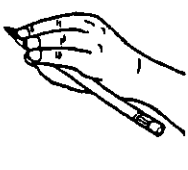


PENCIL GRASP DEVELOPMENT

Grasp Illustration	Grasp Name	Grasp Description	Category	Mean Age	Wrist Extension	Opposition and Open Web Space	Arches of the Hand	Finger Isolation	Separation of Two Sides of the Hand	Muscles of the Hand
	Cross Thumb	Fingers fist loosely into palm, pencil held against index finger with thumb crossed over pencil toward index finger; finger and wrist movement, forearm positioned on table (Gesell, 1940)	Link Grasp	4y 5m	+	-	Transverse	-	-	-
	Static Tripod	Pencil stabilized against radial side of third digit by thumb pulp with index on top of shaft, thumb stabilized in full opposition, wrist slightly extended & hand moving as a unit, pencil resting on open web space, forearm resting on table (Rosenbloom & Horton, 1971)	Link Grasp	4y 5m	slight	+	Longitudinal & Oblique	+	+	-
	Four Finger	Pencil held with four fingers in opposition, wrist and finger movements, forearm positioned on table (Schneck & Henderson 1990)	Link Grasp	4y 7m	+	+	All	-	-	-
	Lateral Tripod	Pencil rests against the tip end of the middle finger, the index finger rests on top of the pencil and the thumb crosses and braces the pencil against the side border of the index finger. Wrist is slightly bent up with the fingers moving during writing and the ring and little fingers bent into the palm, adding stability	Manipulative Grasp	5y 2m	+	-	Transverse & Longitudinal	+	+	+
	Dynamic Tripod	Pencil rests against the tip end of the middle finger, held by thumb and index finger pinching the pencil. Wrist is bent up and the forearm rests on the table with an open web space seen by a circle formed by the finger and thumb. The thumb and first two fingers move during writing, while the ring and little fingers are bent into the palm and add stability.	Manipulative Grasp	5y 3m	+	+	All	+	+	+

The above references were compiled and modified from: Visual References, Description: Schneck & Henderson (1990) Mean Age: Schneck (1987) Wrist Extension, Opposition & Open Web Space, Arches of the Hand, Finger Isolation, Muscles of the Hand: Potter/Bergmann (1992)

PENCIL GRASP DEVELOPMENT

Grasp Illustration	Grasp Name	Grasp Description	Category	Mean Age	Wrist Extension	Opposition and Open Web Space	Arches of the Hand	Finger Isolation	Separation of Two Sides of the Hand	Muscles of the Hand
	Radial Cross Palmar/ Shovel	Pencil positioned across palm projecting radially, held with fist hand, forearm fully pronated, full arm movement (Morrison, 1978)	Holding Grasp	3y 4m	-	-	Transverse	-	-	-
	Palmar Supinate/ Dagger	Pencil positioned across palm projecting ulnarly, held with fist hand, wrist slightly flexed and supinated away from midposition, full arm movement (Erhardt, 1984)	Holding Grasp	3y 8m	-	-	Transverse	-	-	-
	Digital Pronation	Pencil held in palmar grasp with index finger extended along pencil toward tip, arm not supported on table, full arm movement (Morrison, 1978)	Holding Grasp	3y 8m	-	-	Longitudinal	+	-	-
	Brush/ 3-Jaw Chuck	Pencil held with fingers, eraser end of pencil positioned against palm, hand pronated with wrist movement present, whole arm movement, forearm positioned in air (Schneck & Henderson, 1990)	Holding Grasp	3y 10m	-	-	Longitudinal & Oblique	-	+	-
	Grasp with Extended Fingers	Pencil held with fingers, wrist straight and pronated with slight ulnar deviation, forearm moves as a unit (Schneck & Henderson, 1990)	Holding Grasp	3y 11m	-	+	Transverse & Longitudinal	-	-	-

The above references were compiled and modified from: Visual Reference, Description: Schneck & Henderson (1990) Mean Age: Schneck (1987) Wrist Extension, Opposition & Open Web Space, Arches of the Hand, Finger Isolation, Muscles of the Hand: Potter/Bergmann (1992)