



FINE MOTOR SKILL DEVELOPMENT

In Children With Down Syndrome

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ALWAYS BUILD ON OUR STRENGTHS

My child CAN...

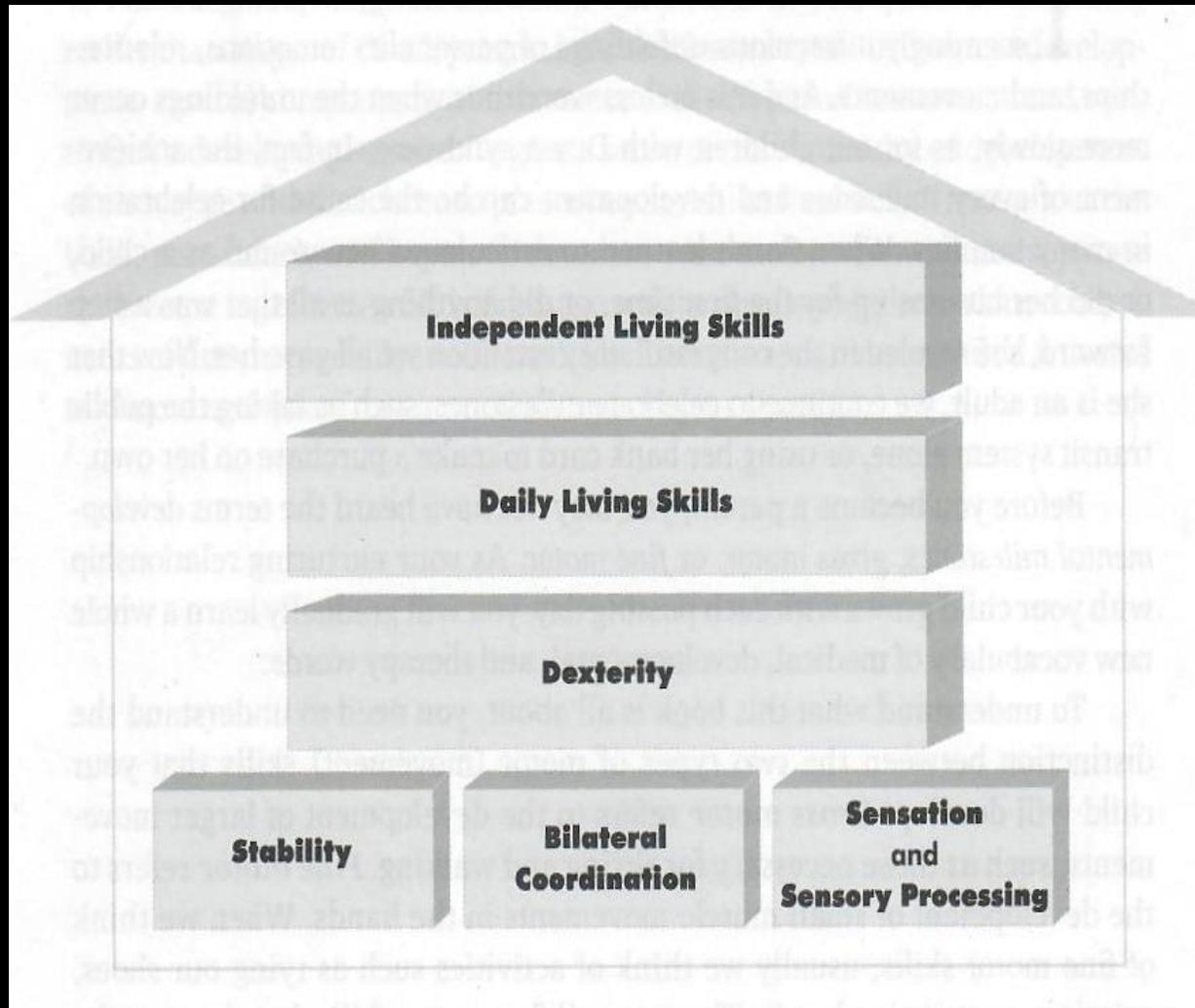
So, now we WILL...



DEAR FUTURE
MOM...DAD...BROTHER...SISTER...GRANDMA...
GRANDPA...AUNT...UNCLE...FRIEND

<https://www.youtube.com/watch?v=Ju-q4OnBtNU>

THE FINE MOTOR SKILLS “HOUSE” MODEL



FIRST LEVEL OF THE FINE MOTOR “HOUSE” BUILDING BLOCKS



Stability

Proximal stability leads to distal mobility

- Shoulder, elbow, forearm, wrist, palm, fingers



Bilateral Coordination

Efficient use of both hands during an activity will allow to control and position an object while the other hand can manipulate

- Zipping, opening milk container, cutting, stirring



Sensory Processing

Neurological process of registering, modulating, interpreting, and integrating all the information from our body, so we can respond in an adaptive and functional way

- Looking for the adaptive response

SECOND LEVEL OF THE FINE MOTOR “HOUSE”

DEXTERITY

- “Ability to make small, precise, accurate, and efficient movements with our hands without excessive effort.” – Bruni, 2016, p. 5
- Using the foundational skills, now able to put it all together!
- Task Analysis

THIRD LEVEL OF THE FINE MOTOR “HOUSE” DAILY LIVING SKILLS



School Tasks

Writing, cutting, typing



Self-Help Skills

Dressing, eating, grooming, showering



Household and Leisure Activities

Chores, sports, hobbies

FOURTH LEVEL OF THE FINE MOTOR “HOUSE”

INDEPENDENT LIVING SKILLS

- Tasks we may complete in our lives as an adult
 - Preparing a meal
 - Making a phone call
 - Grocery shopping
 - Doing laundry
 - House cleaning

PHYSICAL CHARACTERISTICS OF THE HAND

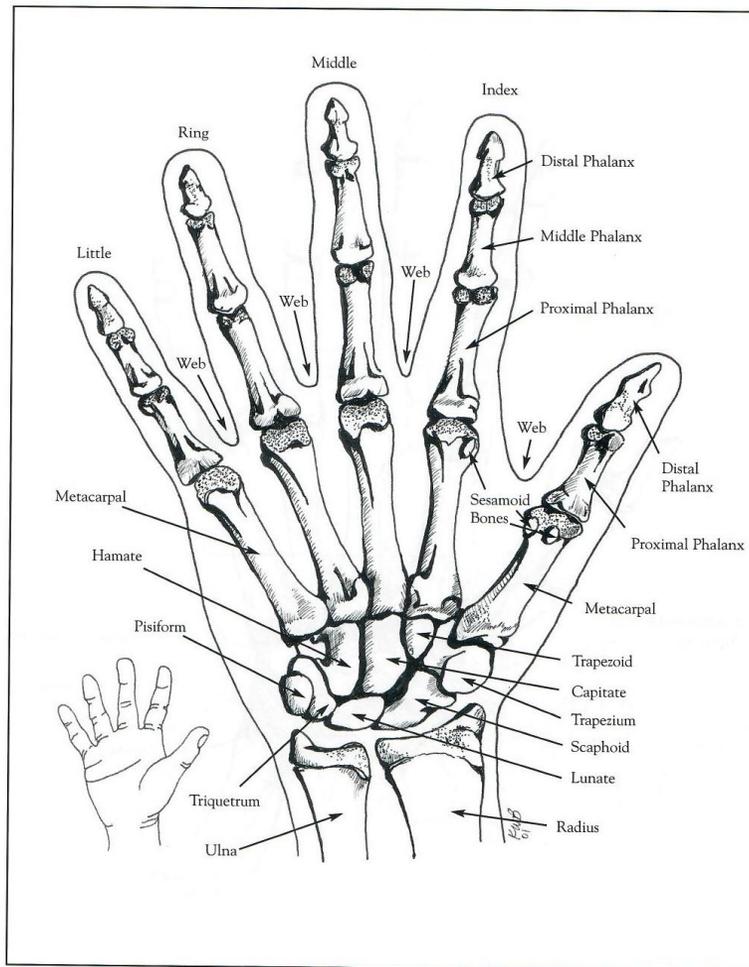


Figure 2-9. Bones of the right wrist and hand—volar view.

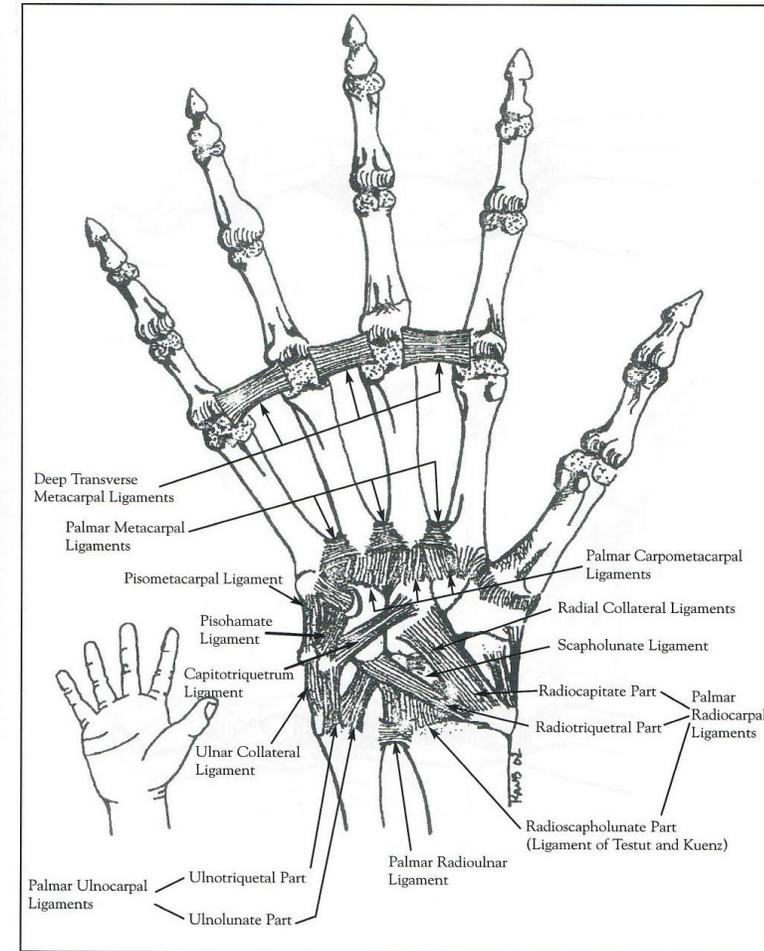


Figure 2-11. Ligaments of the wrist—volar view.

PHYSICAL CHARACTERISTICS OF THE HAND & CONSIDERATIONS FOR A CHILD WITH DOWN SYNDROME

- Hypotonia – low muscle tone in tongue, face, arms, torso, fingers
- Ligament and Joint Laxity – ligaments supporting joints are looser, increases the risk of subluxation or dislocation
 - Atlanto-Axial Instability – first and second vertebrae of the spine are unstable due to lax ligaments
 - Estimated that 10-30% of children with Down syndrome have this instability
 - only 1 – 2% develop symptoms – pg 27
- Shorter Limbs – this is common, may see challenges with learning to sit down, completing toilet hygiene, buying clothing

PHYSICAL CHARACTERISTICS OF THE HAND & POSSIBLE CONSIDERATIONS FOR A CHILD WITH DOWN SYNDROME

Single palmar crease
– may have two
creases in the palm
versus three

There is no
indication that this
impacts hand
function

Smaller hands
overall

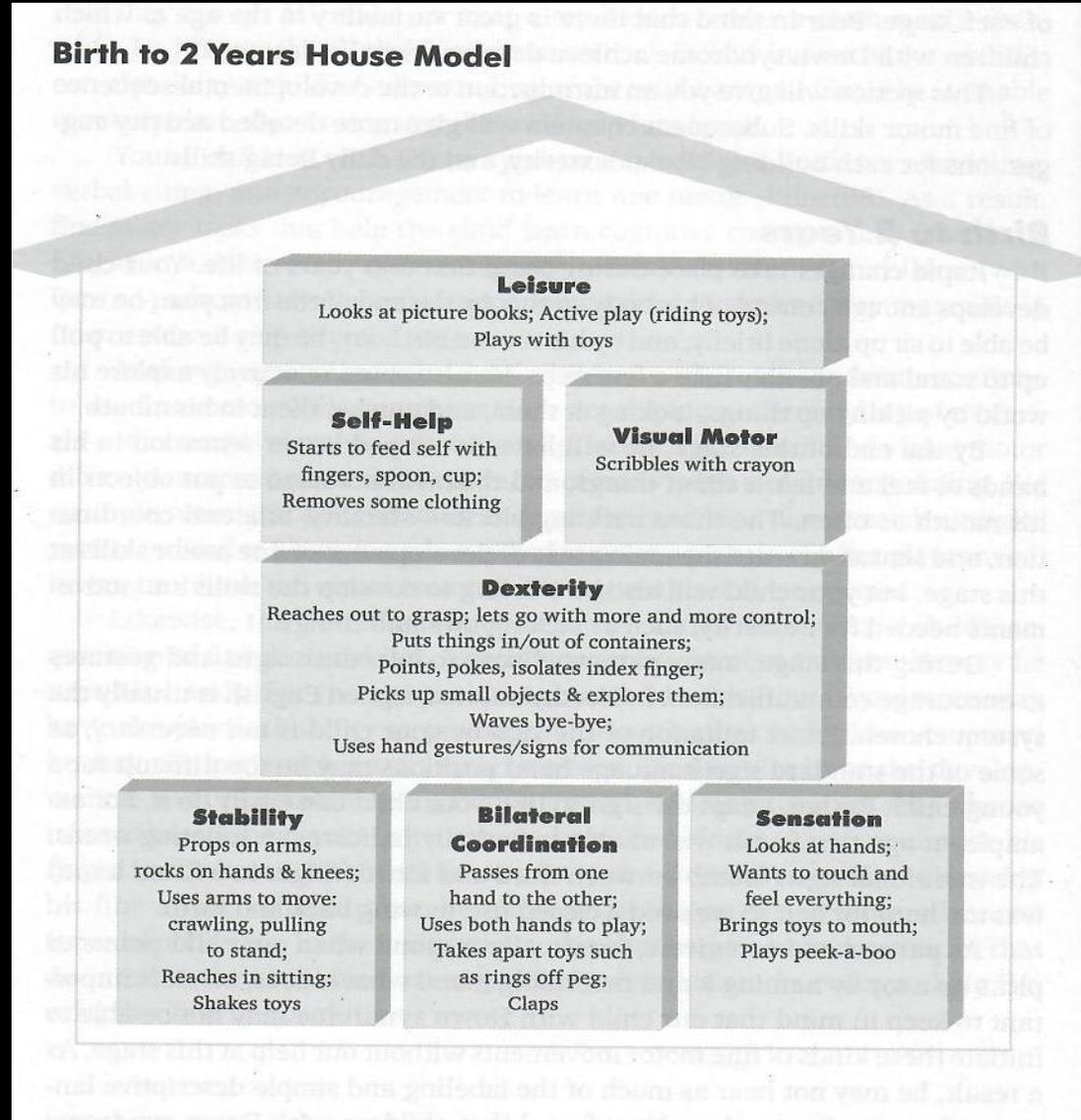
Wrist bones – at birth,
may not have all
seven wrist bones

Are all typically
developed by
adolescence

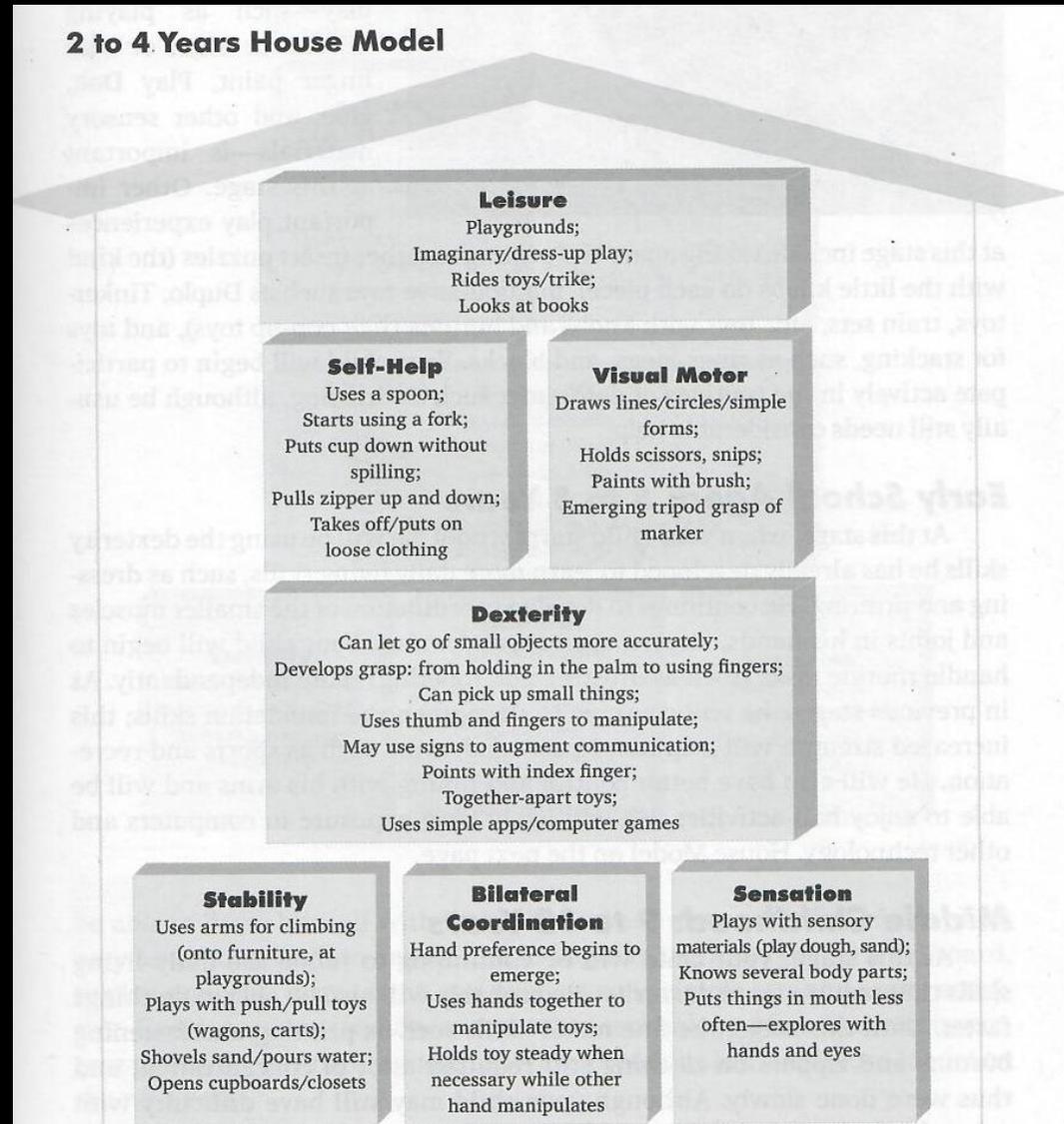
Difficulties
stabilizing the wrist
to allow movement
of fingers to learn
grasping patterns

Curved fifth finger – may
make it difficult to stabilize
hand on the table during
writing, or when using gross
grasp to open a lid

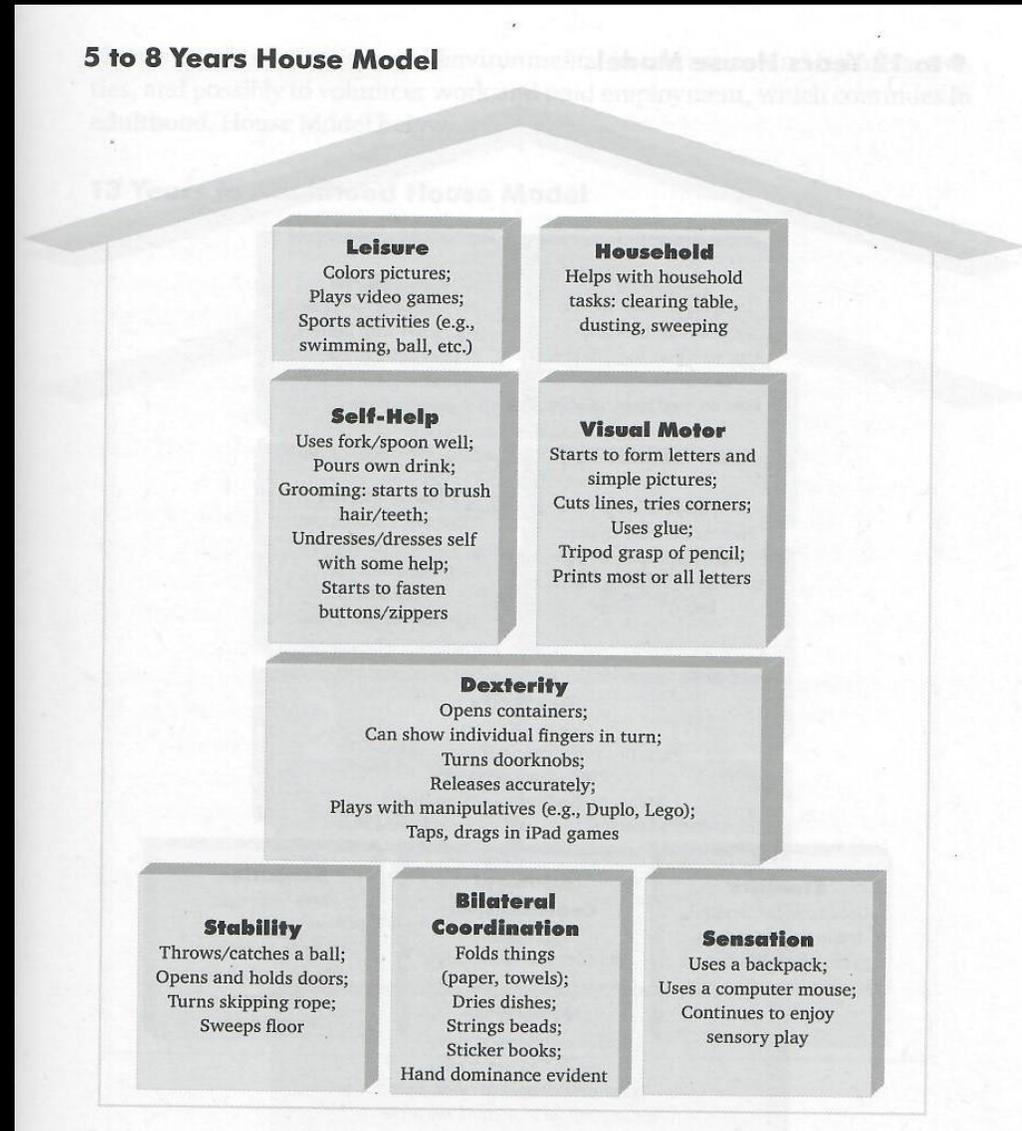
FINE MOTOR SKILLS - BIRTH TO 2 YEARS



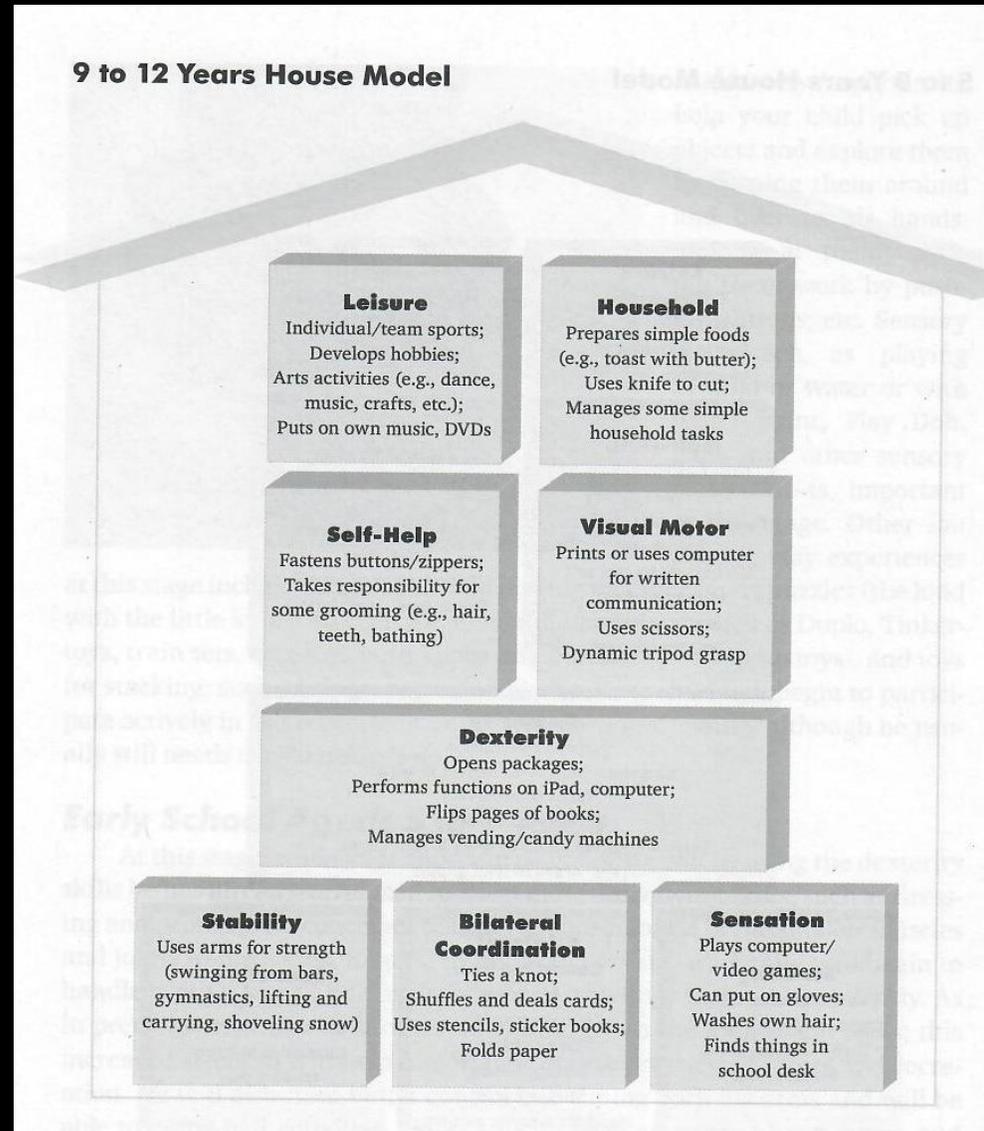
FINE MOTOR SKILLS - 2 TO 4 YEARS



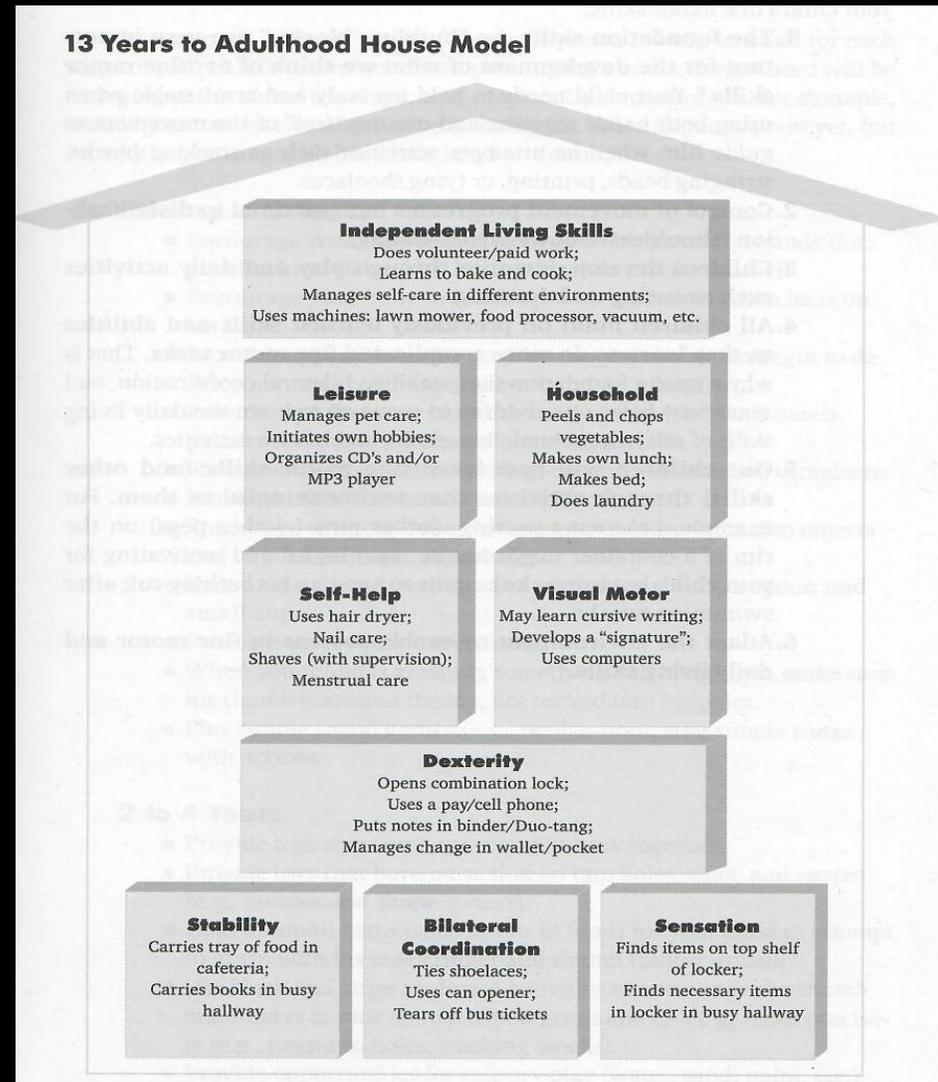
FINE MOTOR SKILLS - 5 TO 8 YEARS



FINE MOTOR SKILLS - 9 TO 12 YEARS



FINE MOTOR SKILLS - 13 TO ADULTHOOD



THINK ABOUT...

Use structured and unstructured play experiences

- Amount of support needed
 - Full, partial, no assistance
- Type of support needed
 - Physical, visual, verbal, emotional
- Level of interest and engagement by the child
 - Uninterested, limited, attentive, motivated, persists at task
- The response to the child's learning attempts
 - Encouraging, re-directing, adjusting, ending task

A vertical red abstract graphic on the left side of the slide, featuring overlapping, curved, semi-transparent shapes in various shades of red and orange, creating a dynamic, layered effect.

MOTIVATION

Motivation is critical for engagement in an activity!

- Have Realistic Expectations
- Build on Success
- Break Down the Activity into Small Steps
- Make It “Fun”
- Make It Relevant
- Be Aware of the Environment
- Try It!



WHO'S AWESOME!

YOU'RE AWESOME!

REFERENCES

- Alexander, R., Boehme, R., & Cupps, B. (1993). *Normal development of functional motor skills*. San Antonio, TX: Therapy Skill Builders.
- Bruni, M. (2016). *Fine motor skills for children with down syndrome, third edition*. Bethesda, MD: Woodbine House, Inc.
- Edwards, S. J., Buckland, D. J., & McCoy-Powlen, J. D. (2002). *Developmental & functional hand grasps*. Thorofare, NJ: SLACK Incorporated.