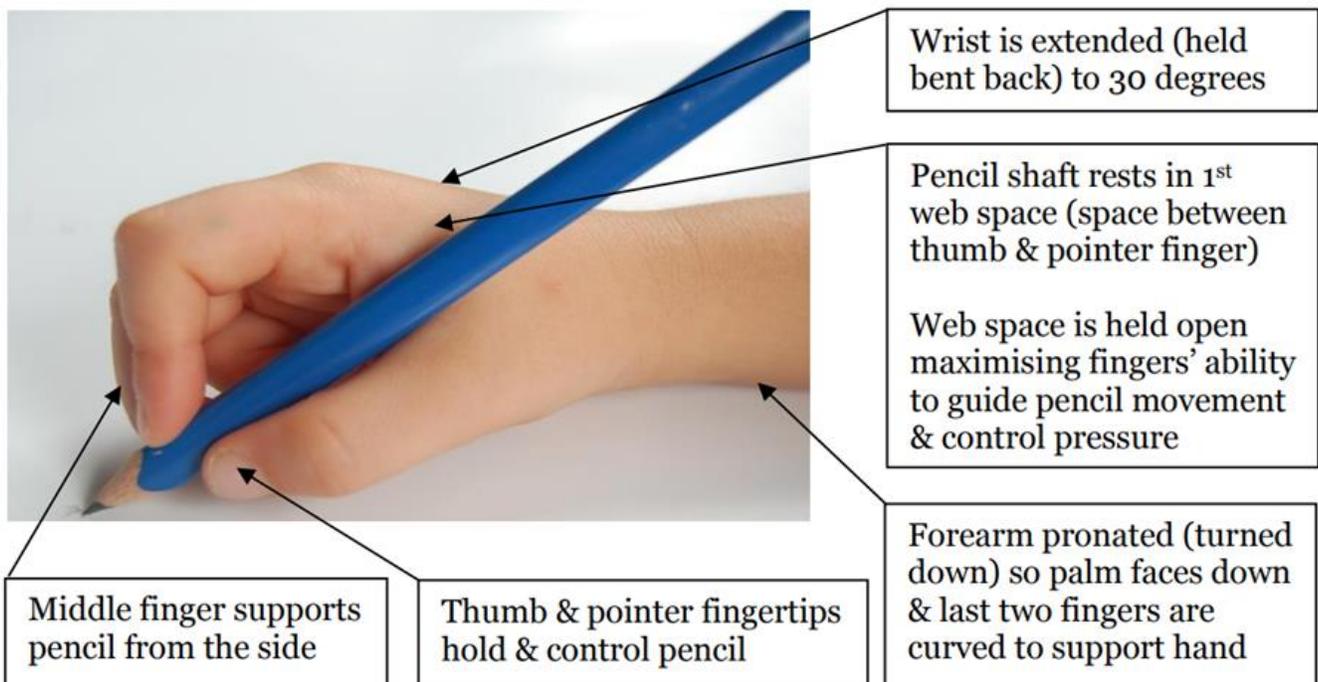


WHY CHILDREN NEED TO STRENGTHEN THEIR MUSCLES IN ORDER TO WRITE SUCCESSFULLY

For a child to perform a fine motor task with good coordination, the child first needs to have sufficient muscle strength in the relevant muscle groups and use the correct movement patterns.

In order to hold and write with a pencil, the child firstly needs a **good upright seated posture** to position their arms and hands optimally. This means that the muscles in their neck and trunk (stomach and back) must be strong. A child with weak neck and/or trunk muscles may lean heavily on the table or support their head in one hand. It is hard to write for any length of time when most of the child's energy goes into just trying to sit up!

Secondly, the muscles within their shoulder girdle (shoulder blade and collarbone region), arm and hand **need to be strong**. In addition, the positioning and movement of the **forearm, wrist, and fingers are positioned** is also important.



Correct Biomechanics to Facilitate a Good Tripod Pencil Grip

Before children are ready to write successfully, they need to have developed strength in the following muscle groups and use the correct biomechanics and movement patterns:

- **Shoulder stability** is the ability to contract (pull together) the muscles on either side of the shoulder girdle to hold the upper arm steady. This allows the arm to be held in different positions while the forearm and hand do an activity like writing.
- **Shoulder control** refers to the ability of the muscles on either side of the shoulder joint to relax gradually on one side while contracting on the other side. This allows the arm to move in a controlled and accurate way. Shoulder stability and control are important as they enable the child to place and hold their arms and hands in a good position for writing and other fine motor tasks.
- **Forearm position** for writing is pronated (turned) so that the palm faces partially down. This helps to position the wrist back for writing. Two muscles in the forearm need to be strong to keep the forearm pronated.
- **Wrist strength** is important for keeping the wrist extended (held in a slightly bent back position) during pencil tasks. This bent back position helps to position the thumb, pointer and middle fingertips close together allowing for better control.
- **Thumb and pointer finger control** the pencil with small bending and stretching movements at the finger joints. Sufficient finger strength is important. The middle finger supports the pencil from the side and also moves somewhat.

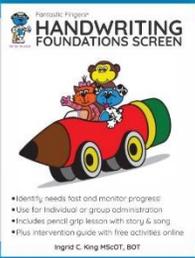
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