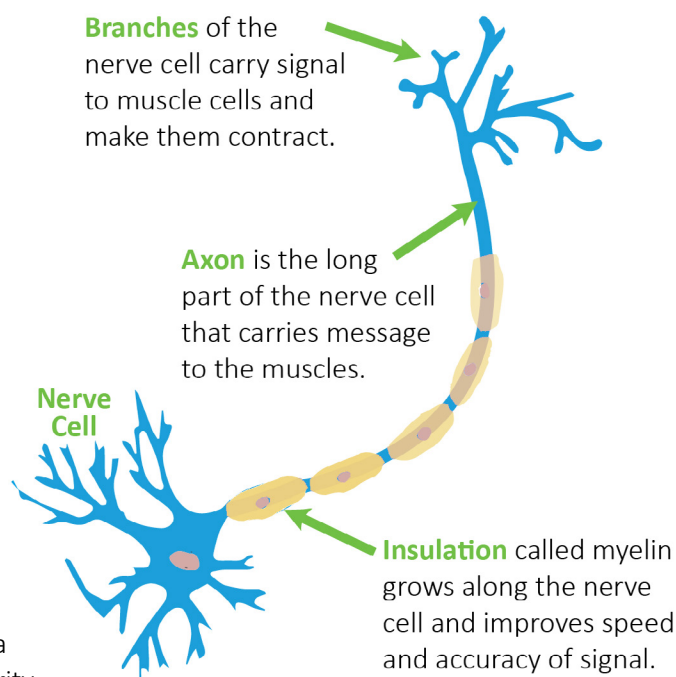## Developing Physical Skills

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Neuromuscular Development Is Critical

Physical skills can not be performed until the brain, nervous system and musculature are sufficiently developed.

As the student gets older, nerve cells that control muscles go through a process of becoming more efficient and effective. The long axon is originally uninsulated and signals travel along it slowly, and "leak" out to surrounding nerve cells, making movements uncoordinated. As the insulation grows along the axon, signals travel faster and are more specific – meaning that movements become more accurate and are executed faster.

If a student can not perform a skill, or is having difficulty, it is possible that their neuromuscular development is not yet advanced enough for that skill.

Since neuromuscular development happens rapidly with students, those born late in the year can appear to be less coordinated than their peers. These "December Babies" can be almost a year younger than others in their class and thus almost a year behind in neuromuscular development and emotional maturity.

Branches of the nerve cell carry signal to muscle cells and make them contract.

Axon is the long part of the nerve cell that carries message to the muscles.

Nerve Cell

Insulation called myelin grows along the nerve cell and improves speed and accuracy of signal.

Finding the Optimum Time to Learn a Skill

Too Early to Learn
Brain and nerve connections not developed enough to learn the skill.

No amount of teaching or practice will help.

Optimal Time to Learn
Brain and nerve connections are well developed for learning the skill.

Teaching and practice are very effective.

Sequence in learning a new physical activity skill, for example catching a ball

Birth	1	2	3	4	5	6	7	8	9	10	11

Age

Learning Possible
Brain and nerve connections are developed enough to learn the skill.

Skill can be learned but progress is generally slow.

Remediation Required
If student has not learned the skill they will fall behind their peers.

Remedial practice required.

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