

The Brain Is Under Construction

Teacher instructions:

Split students into small groups (3-5 students). Provide each group 10 pieces of yarn of varying lengths and explain that these strings represent connections between neurons in the brain.

Designate an area of the classroom as the “brain” (such as a cleared table or section of the floor)

- Have students tape their yarn pieces in the brain. Allow it to become a tangled web as groups add their strings.
- Ask a few student volunteers for examples of things they are good at. Use sticky notes to label the some or all of the strings with these skills or activities (ex. doing math, skateboarding, singing, playing video games, speaking Spanish).

Once the brain is complete, exclaim, “This brain has LOTS of connections—some are used all the time, some barely at all.”

- Pick a few skills to prune: “You stopped taking singing lessons” or “You only speak Spanish once a year when visiting relatives.”
- If a skill isn’t used often, have students “prune” the brain by cutting the string and removing it from the brain.
- Call out the opposite, as well: “You do your math homework everyday” or “you love skateboarding with friends on Saturdays.” Keep the most-used skills.

Ask: What happened to the brain after the pruning?



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Teacher instructions continued:

Explain that brains lose neurons on purpose. The ones we use are saved—the rest are pruned. This makes the brain more efficient.

Next, choose two remaining strings. Wrap one in masking tape and explain that this represents the coating of myelin that is created during myelination. Explain that signals sent on the myelinated pathway travel faster than the unmyelinated one.

Ask students to identify which pathway belongs to their limbic system (the myelinated pathway) and which belongs to their prefrontal cortex (the unmyelinated, untaped pathway).

Share that that's why feelings (controlled by the limbic system) often arrive faster than reasoning (controlled by the prefrontal cortex) in teen brains.

