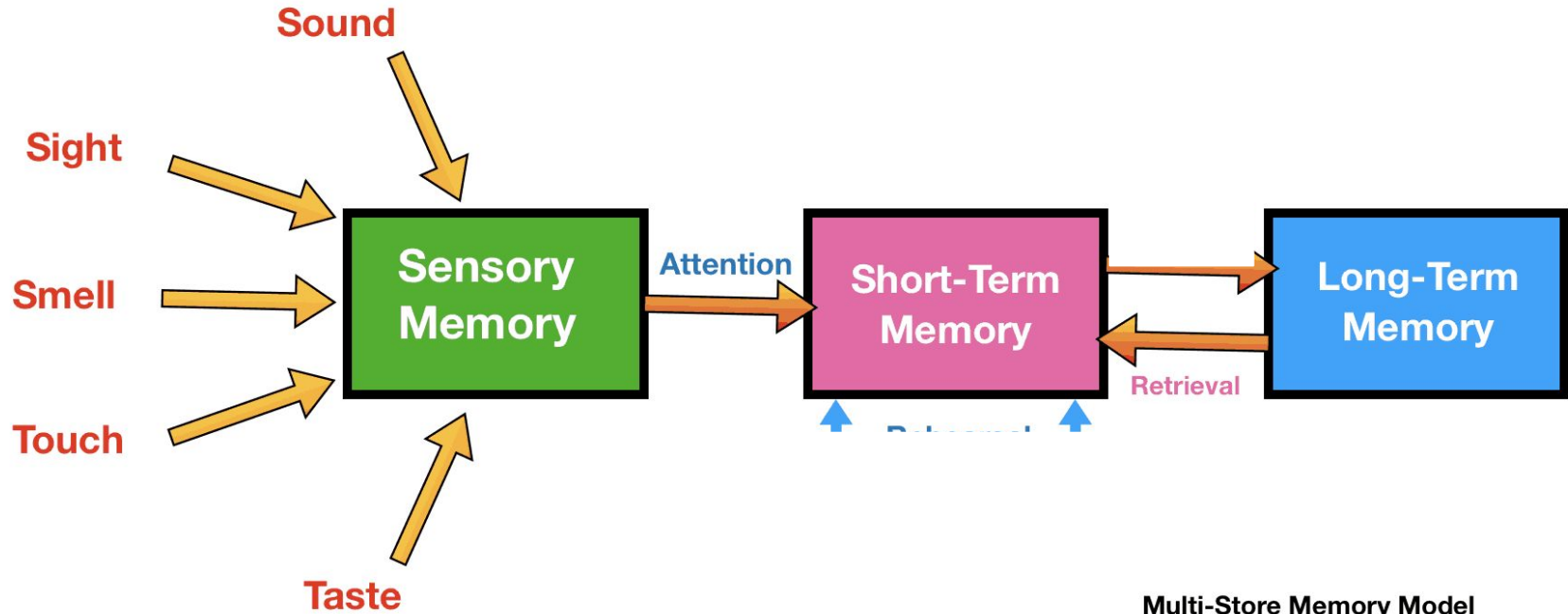


Cognitive Load Theory

Why is learning to code so hard?

What is **cognitive** load theory?

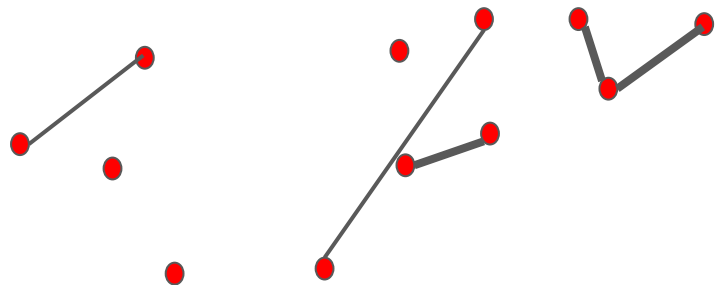
Memory



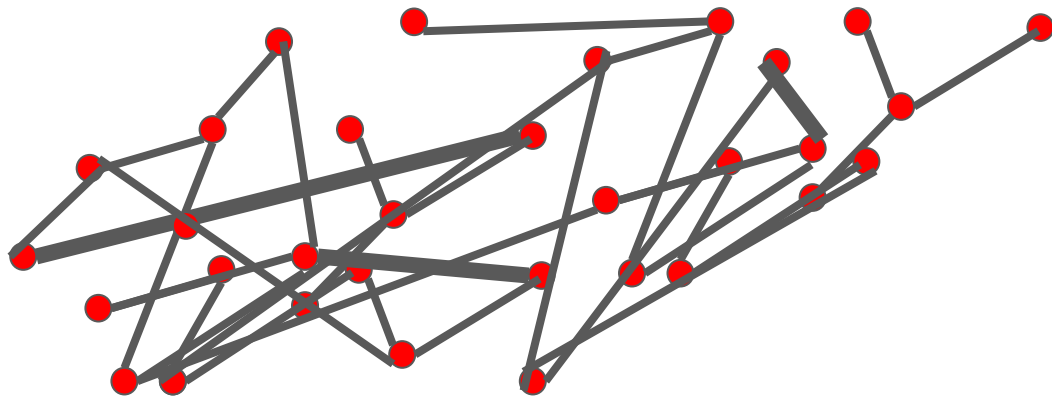
Multi-Store Memory Model
Atkinson & Shiffrin (1968)

Long term memory

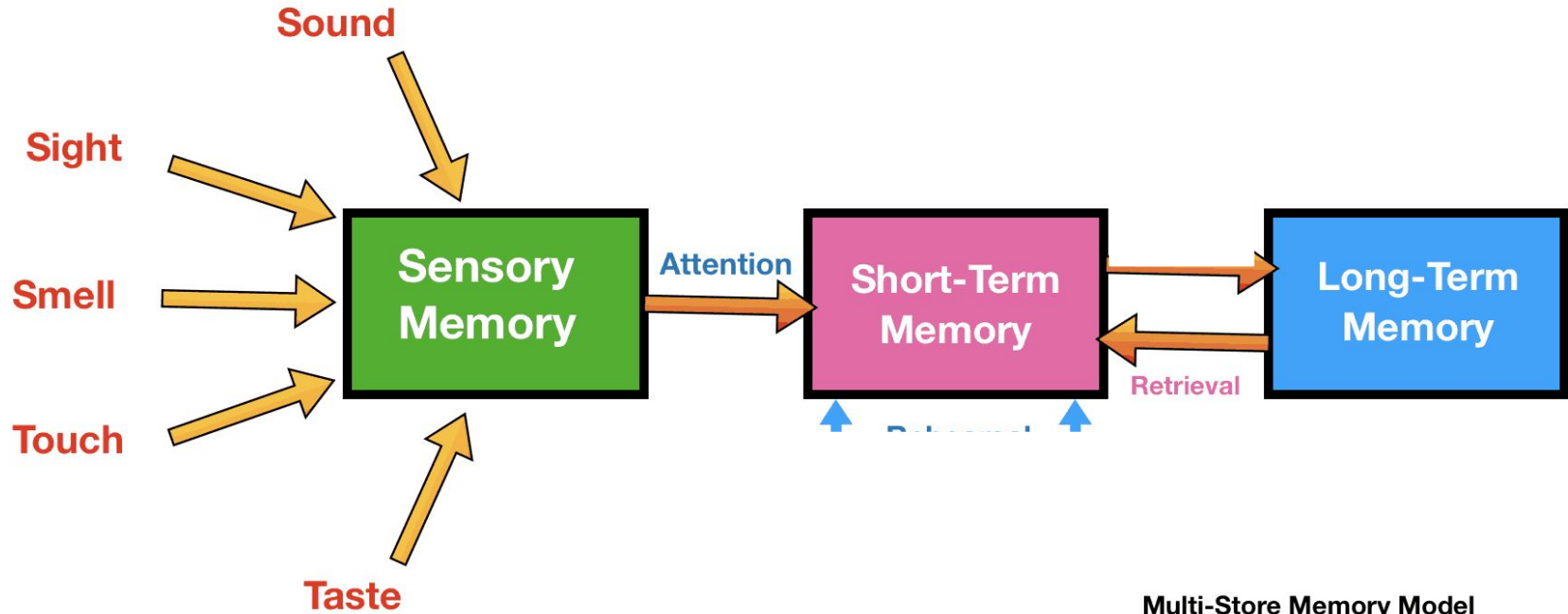
Beginner Schema



Expert Schema



Short term



Multi-Store Memory Model
Atkinson & Shiffrin (1968)

Cognitive Load Theory

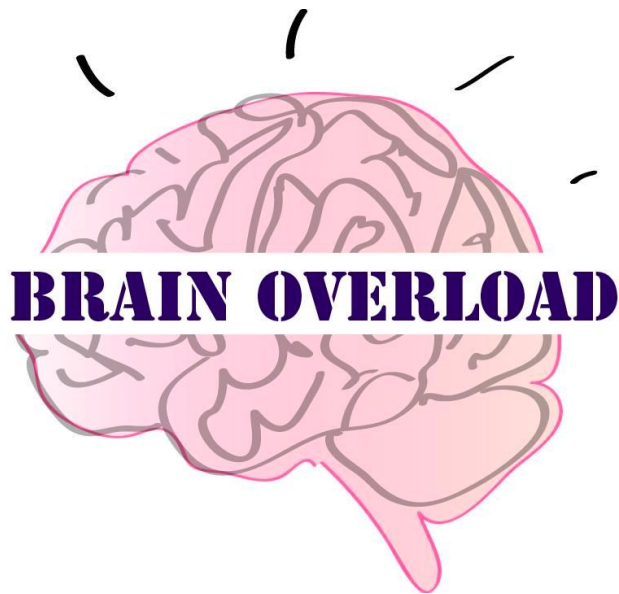
“Because short-term memory is limited, learning experiences should be designed to reduce working memory ‘load’ in order to promote schema acquisition.”

Based on: <https://teachthought.com/learning/cognitive-load-theory-definition-teachers/>

Concepts

Toothache

Touch type



Actual problem

They're meant to solve

Syntax

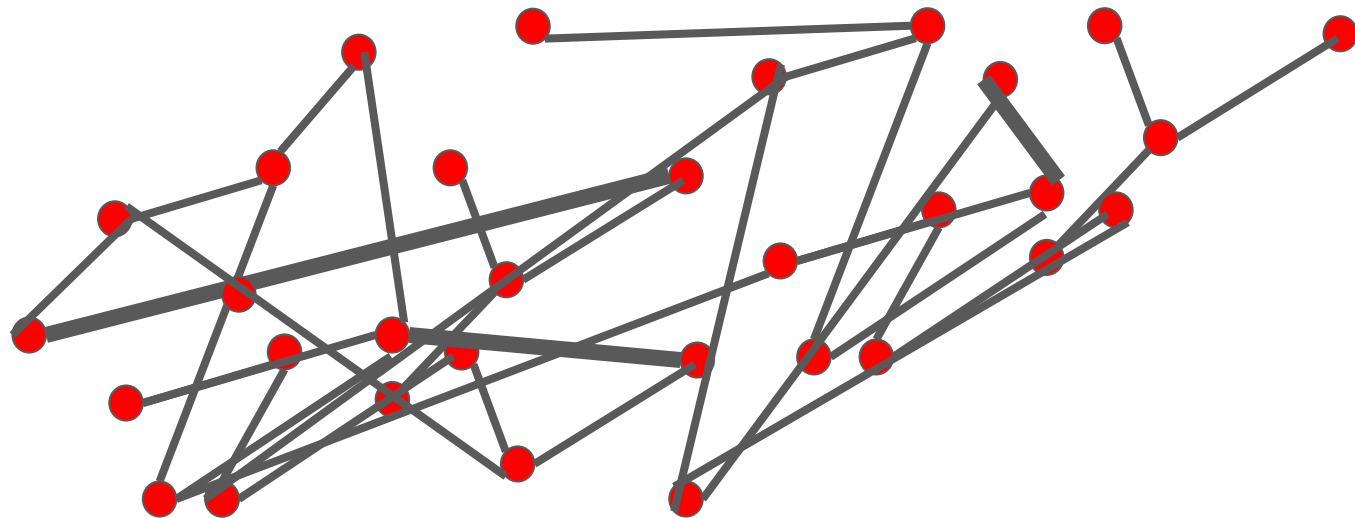
Terminology

Irrelevant information

Practical implications

Experts and Beginners learn differently

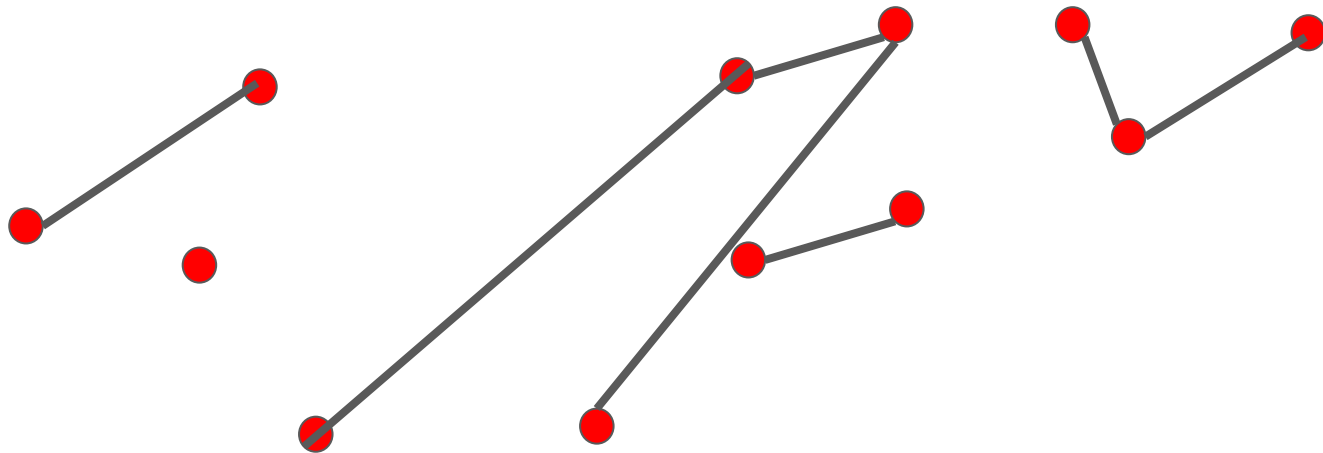
Experts Minds



Discovery learning is for students to **discover facts and relationships** for themselves.

Based on: <https://www.learning-theories.com/discovery-learning-bruner.html>

Beginners minds



Direct instruction is the **explicit teaching** of a skill or fact using lectures or demonstrations of the material to students

Based on: https://en.wikipedia.org/wiki/Direct_instruction

I Do, We Do, You Do



Simple, short explanations - (5-10 minutes) with
practise

What do you want students to be focusing on?

Remove everything else

Minimise distractions

- Maybe don't use an editor for a week or two. Use codepen.
- Code Cheat Sheets - this way they can focus on the problems.
- Definitions - either on the board or handouts (if you have time)
- Highlight relevant information - 'VScode Dimmer' extension is great!

Keep explanations clear and simple

- I do, we do, you do.

Give lots of time to reinforce ideas

- Memory based starters (discuss with your partner what you learnt last time)
- Summaries at the end (e.g. get them to write down 3 things they've learnt)
- Exit tickets

What do you want students to be focusing on?

Remove everything else