

The Four Thinking Colours

The Structural Learning Thinking Framework names the kind of thinking a task demands, so lessons sequence deliberately from retrieval to higher-order work.

GREEN

Know It

Retrieve what you already know. Activate prior knowledge before anything new lands on top of it.

In class: Two minutes, books closed: write everything you remember about food chains.

ORANGE

Define It

Pin down the vocabulary with precision. Words learners can use, not just recognise.

In class: Producer and consumer: say the difference to your partner in your own words.

BLUE

Map It

Organise the ideas visually so the structure of the knowledge becomes visible.

In class: Build the food web diagram; arrows must show which way the energy flows.

RED

Higher-Order

Apply, analyse, evaluate. Earned thinking: it works because Green, Orange and Blue came first.

In class: Remove the foxes. Predict and justify what happens to each population.

Colour Sequencing Cards

Planning prompts for sequencing a lesson. Red thinking needs Green plus Orange or Blue in place first.

Start Green

Open with retrieval, not re-teaching. Low stakes, everyone answers, feedback follows.

Say: "What do they already know, and how will every learner show me?"

Earn Orange

Choose a maximum of three terms that genuinely matter. Teach them with examples and non-examples.

Say: "Which words must they OWN before the main task?"

Build Blue

Pick the organiser that matches the knowledge shape: cycle, hierarchy, comparison, sequence.

Say: "What does this knowledge look like when it is organised?"

Finish Red

One genuine apply-or-evaluate task beats four worksheet questions. Demand justification.

Say: "Where do they use this knowledge to decide something?"

What Colour Is Your Thinking?

Self-talk for learners. Name the thinking you are doing; notice when the colour changes.

KNOW**Green says**

What do I already know about this? Let me get it out of my head before I look anything up.

Sounds like: I remember three things about this from last week...

DEFINE**Orange says**

Can I say what this word means in my own words, with an example?

Sounds like: Evaporation means... for example when puddles dry up.

MAP**Blue says**

How do these ideas connect? What goes with what, and in which order?

Sounds like: These three causes all lead to this one effect, so my map needs three arrows.

APPLY**Red says**

Now I use it: decide, predict, argue. My evidence comes from my green, orange and blue work.

Sounds like: I predict X because my map shows Y depends on Z.

Planning a Colour-Sequenced Lesson

A pre-flight check for lesson design with the framework. Sequence is the point: depth is earned, not announced.

The non-negotiables

- The lesson opens Green: retrieval of the prior knowledge this lesson builds on.
- Red thinking only appears after Green plus Orange or Blue have happened.
- No two consecutive activities demand the same colour: vary the thinking.
- Younger classes get fewer Red steps; depth of Red grows with phase.

Quality per colour

- Green: low-stakes, everyone responds, misconceptions surface and get addressed.
- Orange: three terms maximum, taught with examples, non-examples and learner use.
- Blue: the organiser shape matches the knowledge shape, and learners build it (not colour it in).
- Red: the task demands justification, and success criteria reward the reasoning.

After the lesson

- Note which colour wobbled: that is next lesson's starting point.
- The Blue artefact (map, organiser) is kept: it becomes Green retrieval material next week.

Thinking Colours: The Evidence Behind Each Colour

The framework is Structural Learning's synthesis. Each colour stands on an established evidence base, summarised honestly below.

■ Green stands on retrieval practice

Across applied classroom studies, retrieval practice consistently benefits learning, with most experiments showing medium or large effects, and practice testing beats restudying in meta-analysis.

■ Orange stands on vocabulary research

Teaching word meanings through active processing supports comprehension of texts using those words; copying definitions does little. Precision with terms is a prerequisite for reasoning with them.

■ Blue stands on graphic organisers and dual coding

Graphic organisers show moderate to large effects on vocabulary, comprehension and inference, including for learners with learning difficulties, and well-chosen visuals aid comprehension.

■ The honest caveat

The framework as a package is our design for sequencing these evidence-based practices; the package itself has not been independently trialled. The colours make proven practices usable, and your class data is the test that matters.

Evidence base

Agarwal, P.K., Nunes, L.D. and Blunt, J.R. (2019). Retrieval practice consistently benefits student learning: a systematic review of applied research. *Educational Psychology Review*.

Adesope, O.O., Trevisan, D.A. and Sundararajan, N. (2017). Rethinking the use of tests: a meta-analysis of practice testing. *Review of Educational Research*.

Wright, T.S. and Cervetti, G.N. (2017). A systematic review of the research on vocabulary instruction that impacts text comprehension. *Reading Research Quarterly*.

Dexter, D.D. and Hughes, C.A. (2011). Graphic organizers and students with learning disabilities: a meta-analysis. *Learning Disability Quarterly*.