

Two Ways New Ideas Land

Piaget's pair, in classroom terms: sometimes new information slots into what a learner knows; sometimes it has to rebuild it.

ADD

Assimilation: slots right in

The new example fits the existing idea. Cheap, fast, and the default: which is why misconceptions absorb new facts too.

In class: A child who knows dogs meets a chihuahua: still a dog. Schema intact, example added.

REBUILD

Accommodation: rebuild required

The new case will not fit, so the idea itself must change. Effortful, slower, and where deep learning lives.

In class: A whale is not a fish. 'Sea animal = fish' has to break and rebuild into mammal/fish.

CONFLICT

Disequilibrium is the lever

Learners only rebuild when the old idea visibly fails. Engineer the failure kindly.

In class: Predict first, then test: the gasp when the heavy and light ball land together is accommodation starting.

CHECK

Without the check, wrong ideas assimilate

Teaching that never surfaces prior ideas lets new content be absorbed INTO the misconception.

In class: Taught 'the Earth is round', some children picture a pancake: round, flat, schema intact.

Schema Moves

Four moves for managing how new ideas meet old ones.

Surface before teaching

Get the existing idea out where you can see it, before the new content lands on it.

Say: "Draw what you think happens to the food after you swallow it. No right answers yet."

Connect deliberately

For assimilation-friendly content, name the link to what they know. Connection is the teaching.

Say: "This is like the water cycle we did, but for rocks. What matches? What is different?"

Confront with a clean conflict

For misconceptions, one crisp discrepant event beats ten corrections.

Say: "You predicted the ice would make the water overflow as it melts. Watch the line."

Consolidate the new structure

After accommodation, make the new schema visible and retrieve it later: rebuilds decay fast.

Say: "Redraw your digestion diagram now. Friday, you will draw it again from memory."

Misconception First Aid

Misconceptions are schemas doing their job with bad inputs. The repair sequence matters.

1. Predict

Learners commit to the misconception's prediction publicly or on paper. Commitment makes the conflict felt.

In class: Which falls faster? Write it down before we drop anything.

2. Confront

The event happens; the prediction fails; the gap is undeniable and discussed, not announced.

In class: Both landed together. Talk in pairs: what does that do to your explanation?

3. Replace

Teach the correct model explicitly NOW, while the old one is open. A vacated schema refills with the nearest idea.

In class: Here is what gravity actually does, with the diagram. Compare it to your old idea directly.

4. Revisit

Misconceptions reassert. Retrieve the new model at spaced intervals, with the old error named.

In class: Friday starter: a student says heavy things fall faster. What do we know that they do not?

Planning for Schema Change

Before a topic with known misconceptions, check the rebuild is designed, not hoped for.

Before

- The common misconceptions for this topic are listed in the plan.
- Prior ideas get surfaced (drawing, prediction, quick quiz) before new teaching.
- Content that genuinely extends existing knowledge is taught through explicit connection.

During

- At least one discrepant event or non-fitting example confronts the key misconception.
- The correct model is taught explicitly straight after the conflict.
- A visual organiser makes the new structure inspectable.

After

- The new model is retrieved at least twice in the following fortnight.
- The old misconception is named in retrieval, so learners recognise its pull.
- Assessment items test the boundary cases, not just the friendly examples.

Assimilation and Accommodation: A 5-Minute Evidence Briefing

Piaget's most durable pair of ideas, and how modern evidence carries them.

■ The pair survived Piaget's stages

While strict developmental stages have been heavily revised, the assimilation/accommodation mechanism remains the working model of how prior knowledge shapes new learning.

■ Prior knowledge is the gatekeeper

New information is interpreted through existing schemas, which is why surfacing and strengthening prior knowledge (retrieval practice) pays before new content arrives.

■ Conceptual change needs engineering

Misconceptions rarely yield to correction alone: predict-confront-replace-revisit sequences, with structure made visible through organisers, are the practical machinery of accommodation.

■ The honest caveat

Assimilation and accommodation are explanatory constructs, not directly measurable events, and conceptual-change research shows rebuilt ideas coexist with old ones for years. Plan for relapse, not conversion.

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*.

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

Margolis, A.A. (2020). Zone of proximal development, scaffolding and teaching practice. *Cultural-Historical Psychology*.

Piaget, J. (1952). *The Origins of Intelligence in Children*. International Universities Press.