Knowledge Construction

Developing critical thinking skills

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Why is knowledge construction important?

Knowledge construction provides a rationale for giving young people an opportunity to move beyond memorizing facts and to develop their critical thinking and reasoning skills.

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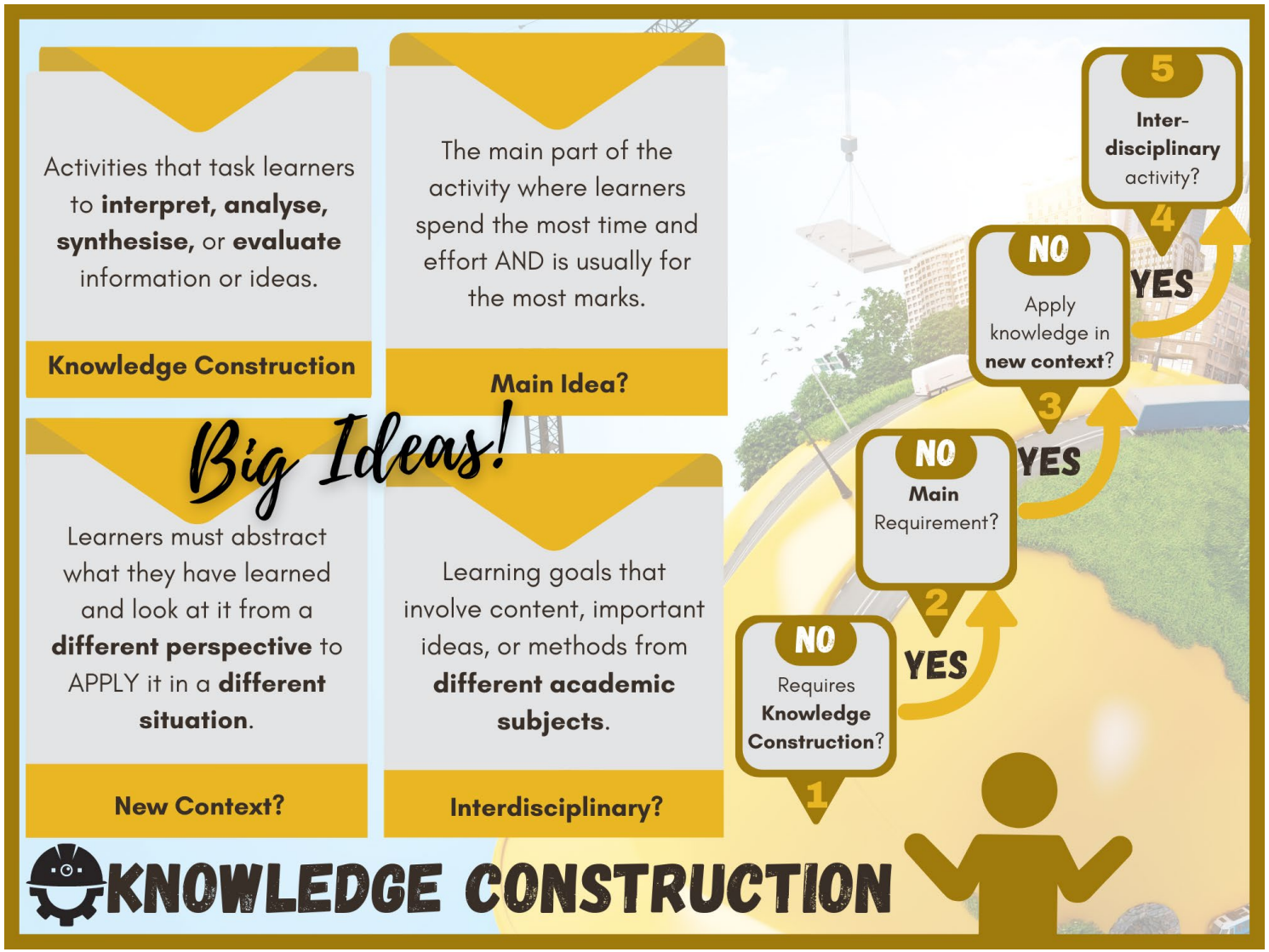

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Knowledge Construction

- More than reproducing what has been learned
- Generate ideas and understandings that are new
- Part of designing the produce themselves
- Application of knowledge
- Interdisciplinary
- Purposeful
- Main part of activities or main part being assessed
- Synonymous with critical thinking

Activities that task learners to **interpret, analyse, synthesise,** or **evaluate** information or ideas.

Knowledge Construction

Generate ideas & understanding with Higher order thinking skills:

- Interpretation
- Analysis
- Synthesis
- Evaluation

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Main requirement of an activity?

- Time,
- Effort
- AND Marks

The main part of the activity where learners spend the most time and effort AND is usually for the most marks.

Main Idea?

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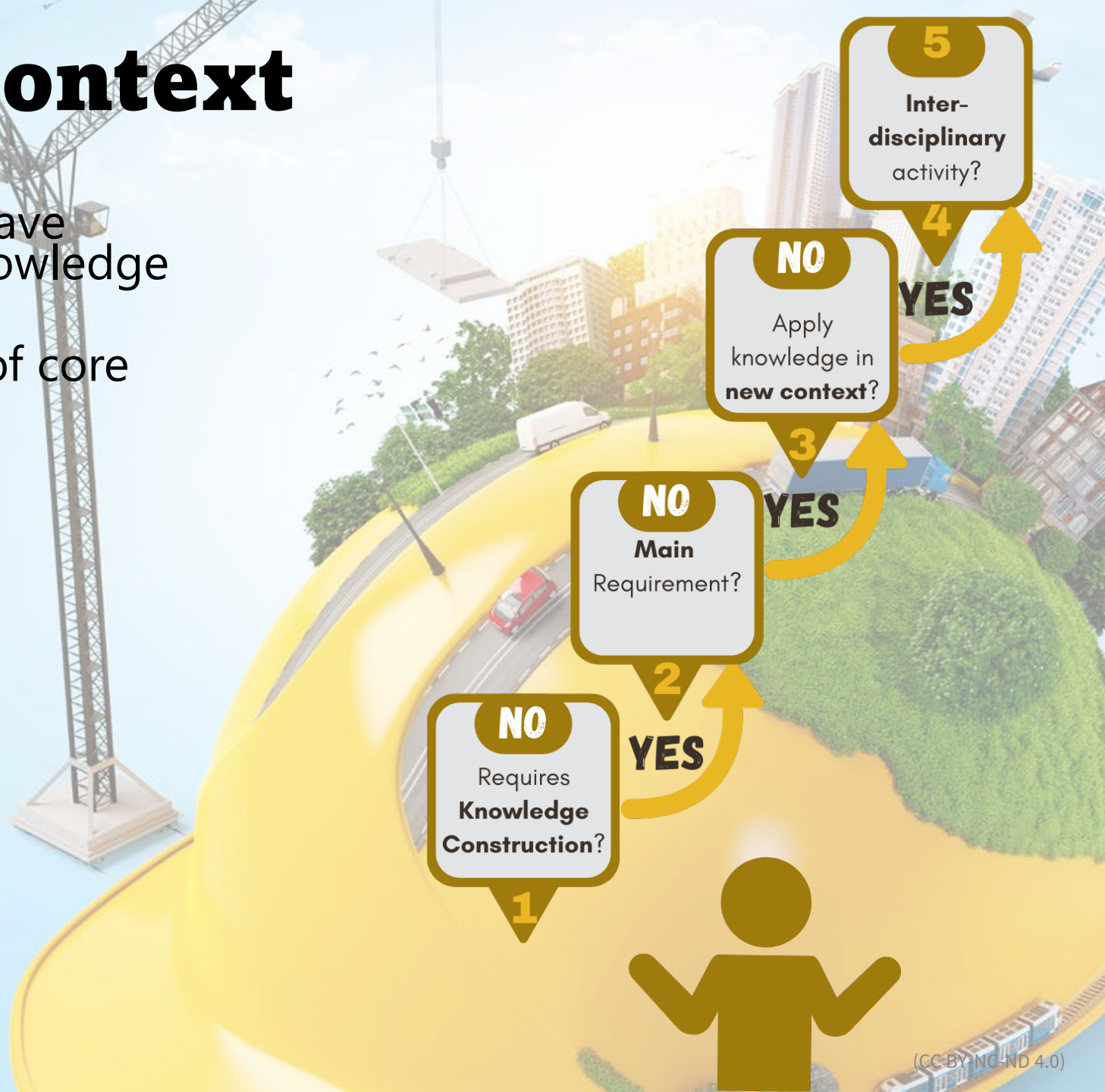
Apply in a New Context

- Learners use the knowledge they have constructed to support another knowledge construction
- Deepens students' understanding of core principles
- A different perspective
- A different situation

Learners must abstract what they have learned and look at it from a **different perspective** to APPLY it in a **different situation**.

New Context?



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Interdisciplinary

- Have **learning goals** that involve content, important ideas, or methods from different academic subjects
- The final product, solution or outcome needs to be **assessed** against both/all subject areas.

Learning goals that involve content, important ideas, or methods from **different academic subjects**.

Interdisciplinary?

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Microsoft tools that support knowledge construction

- Edge
- Teams
- OneNote Class Notebook
- SmartArt graphics (Word, PowerPoint)

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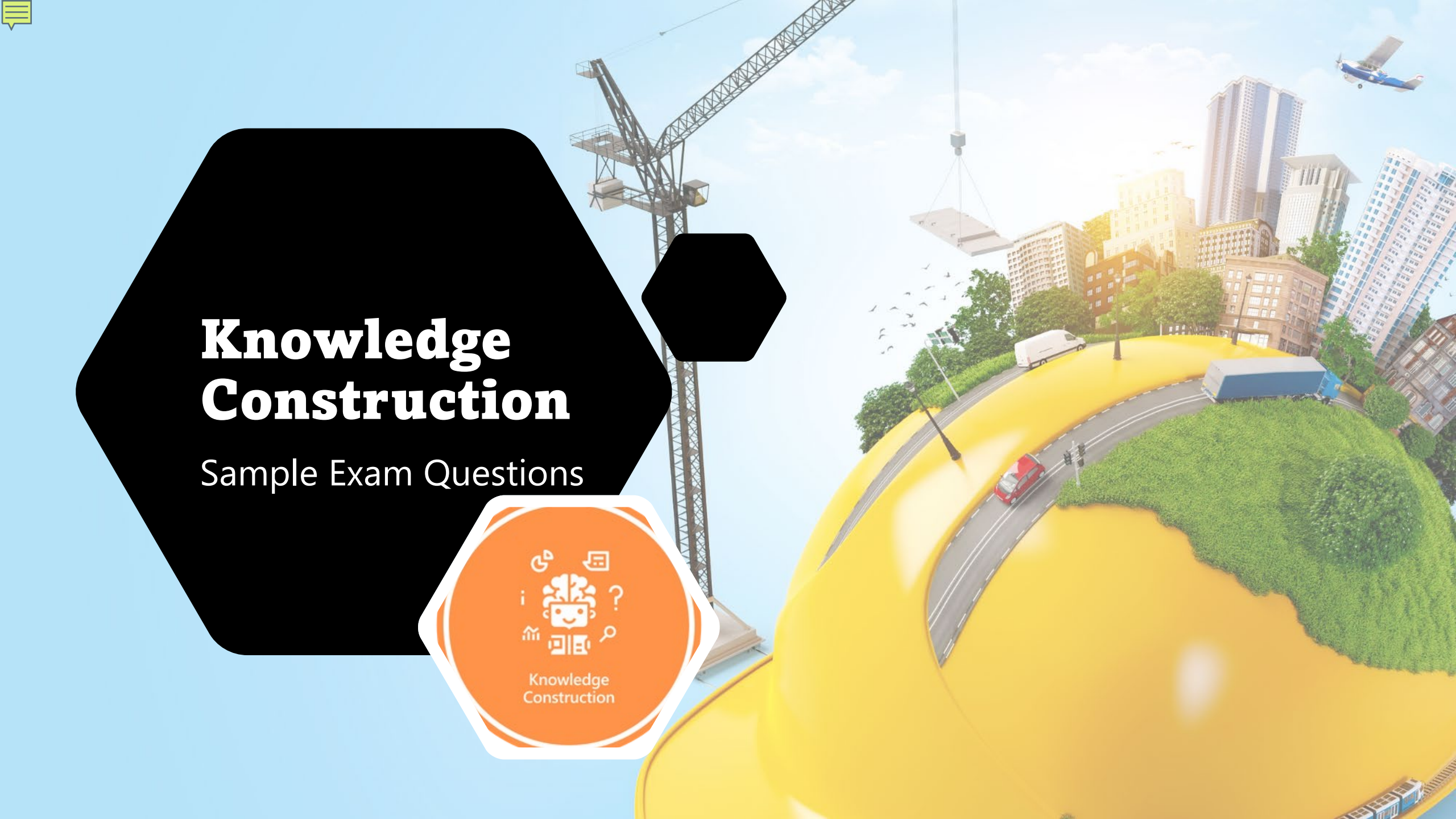
Knowledge Construction

Sample Exam Questions



Question 1

Your students are learning about the water cycle. In the past, you have told them all that they need to know, and given them notes and diagrams. You need to create a 21st-century project for them. Which of these learning activities requires your students to apply their knowledge in a new context?

a) Students use Minecraft to recreate the water cycle.

b) Students draw a diagram in PowerPoint to show the water cycle.

c) Students interview a local expert in water systems.

d) Students create an interactive presentation showing how water cycles through the environment.

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Question 2

Students in social sciences read about ancient Egypt and are tested on key events and information. For each of the following scenarios, select Yes if it transforms the learning activity into one that involves knowledge construction. Otherwise, select No.

a) The teacher uses AR in the lessons. Students use an app and point to an image of something in ancient Egypt to learn more about it.

b) Students conduct research into ancient Egypt and use the research to write dialogue for a play which will be recorded.

c) The teacher shows how to create a timeline and then asks the students to create a timeline using Excel.

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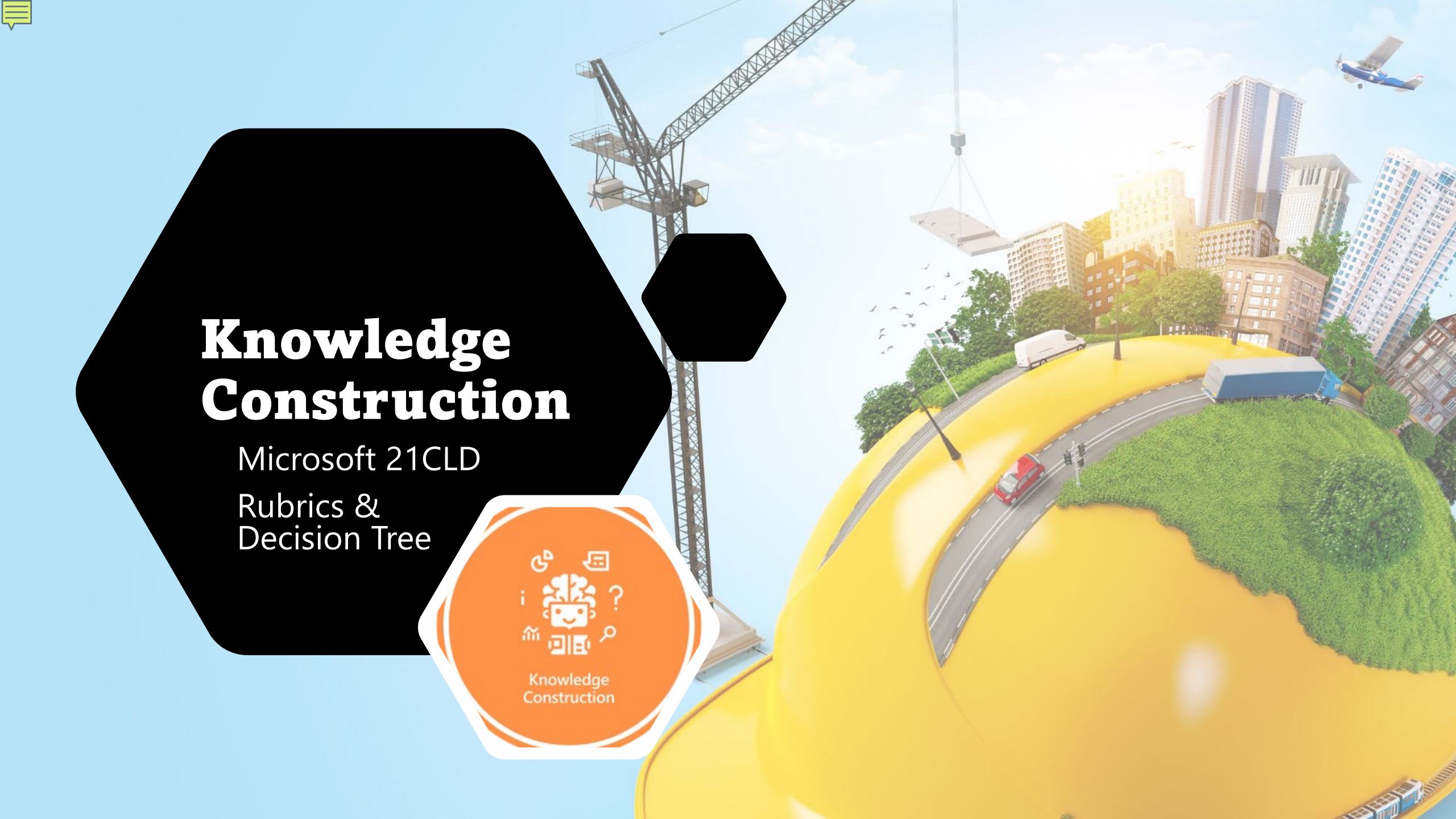
Knowledge Construction

Microsoft 21CLD

Rubrics &
Decision Tree



Rubric

Knowledge Construction rubric

1	▪ The learning activity does NOT require learners to construct knowledge. Learners can complete the activity by reproducing information or by using familiar procedures
2	▪ The learning activity DOES REQUIRE learners to construct knowledge by **interpreting**, **analyzing**, **synthesizing**, or **evaluating** information or ideas ▪ BUT the activity's main requirement is NOT knowledge construction
3	▪ The learning activity's **main requirement** IS knowledge construction ▪ BUT the learning activity does NOT require learners to apply their knowledge in a new context
4	▪ The learning activity's **main requirement** IS knowledge construction ▪ AND the learning activity DOES require learners to **apply their knowledge in a new context** ▪ BUT the learning activity does NOT have **learning goals in more than one subject**
5	▪ The learning activity's **main requirement** IS knowledge construction ▪ AND the learning activity DOES require learners to **apply their knowledge in a new context** ▪ AND the knowledge building IS interdisciplinary. The activity DOES have **learning goals in more than one subject**

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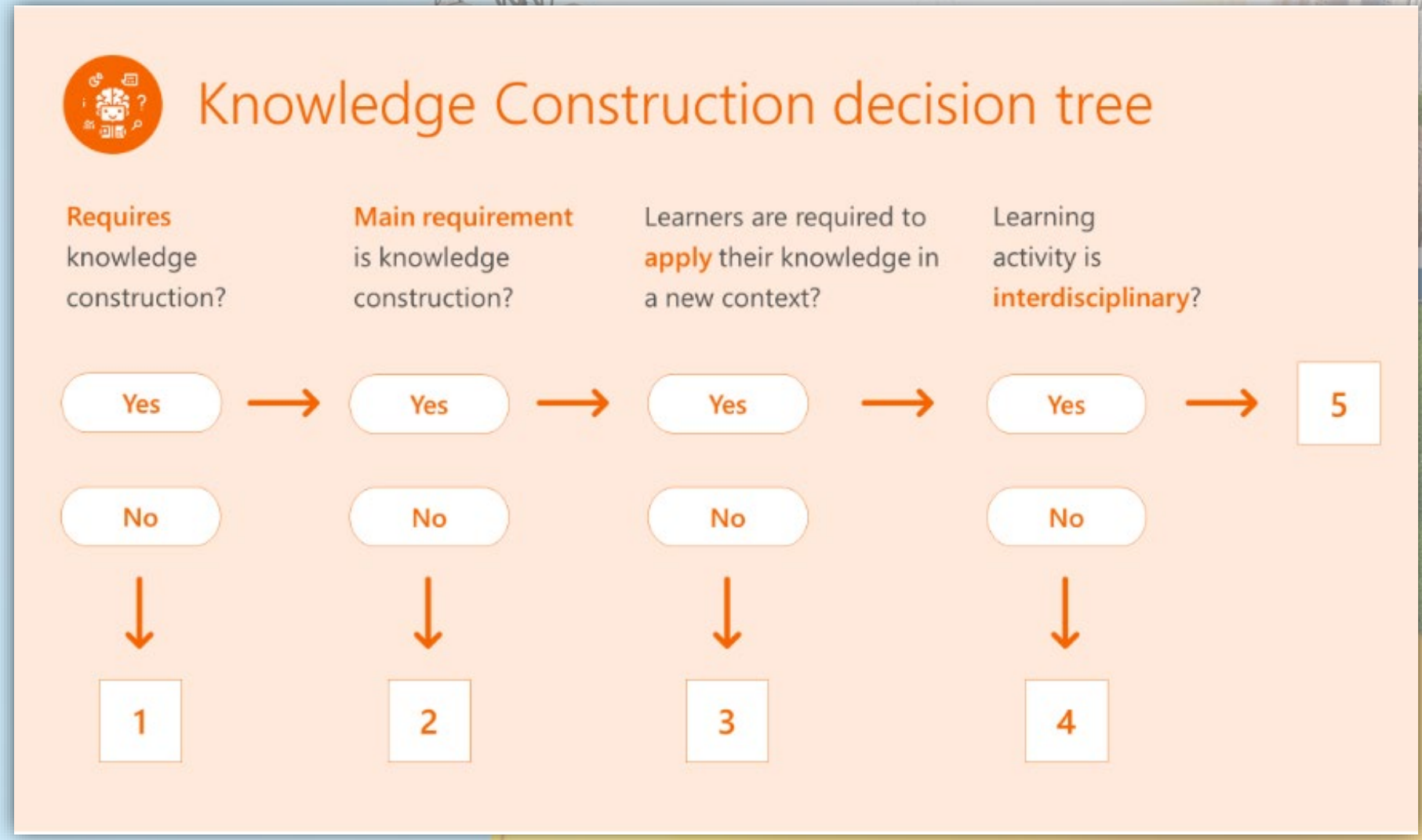
Decision Tree



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