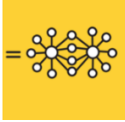
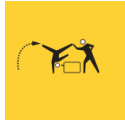
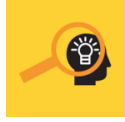
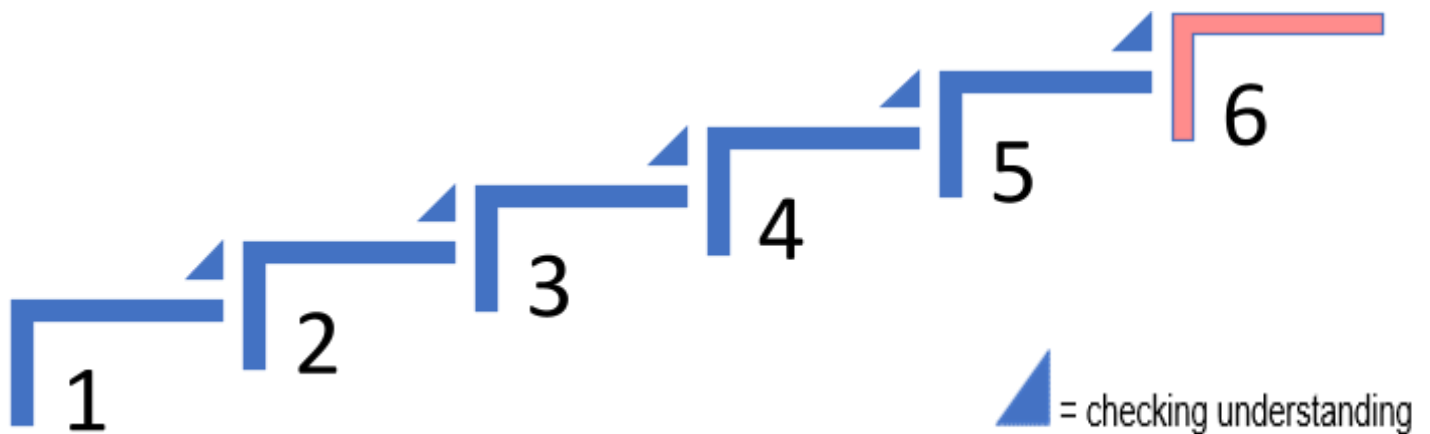


Rosenshine's Principles (dual coding icons) for teachers' use

Principle	Description	Icon
1	(Daily) review Start each lesson with a repetition of previous material. Regular repetition reinforces what was learned and leads to more spontaneous recall.	
2	New materials in small steps Present learning materials in small amounts. Accompany students with practice after each step.	
3	Ask questions (onderwijsleergesprek) They connect the new learning material with previous knowledge and practise it.	
4	Provide models Pupils can focus on the steps to solve a problem.	
5	Guide student practice The best teachers spend a lot of time supervising the practice/learning of new material.	
6	Check student understanding (onderwijsleergesprek) By checking in between, pupils can learn the material with fewer mistakes.	
7	Obtain high success rate Aim for the students to experience approximately 80% success in the exercises, questioning ...	
8	Scaffolds for difficult tasks The teacher provides temporary support that decreases as students become more competent.	
9	Independent practice Provide practice time in and out of the classroom so that the learned material can be automated.	

10	(Weekly and monthly) review Pupils need to practise intensively in order to automate the material. Not necessary for this key study.	
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Icons based on [Rosenshine poster by Oliver Caviglioli](#)



Step 1: Direct instruction / teacher facilitated stage - this is where schema building begins. Present new material.

Step 2: Modelling / Scaffolding, with review and questioning – what data are needed?

Step 3: Individual exploration

Step 4: Review - discussion

Step 5: Problem-solving

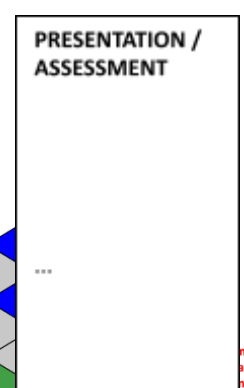
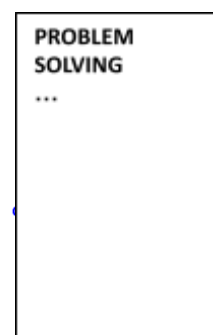
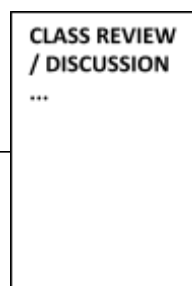
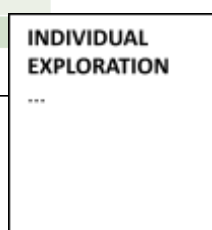
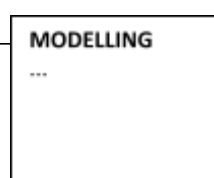
Step 6: Presentation/Assessment (Peer assessment possible too) and sharing of outcomes. This will also be the stage where students may feel secure enough to start their own exploration.



Title:	Working memory: Current learning schema
Write key concept here:	
1	
2	
3	
4	

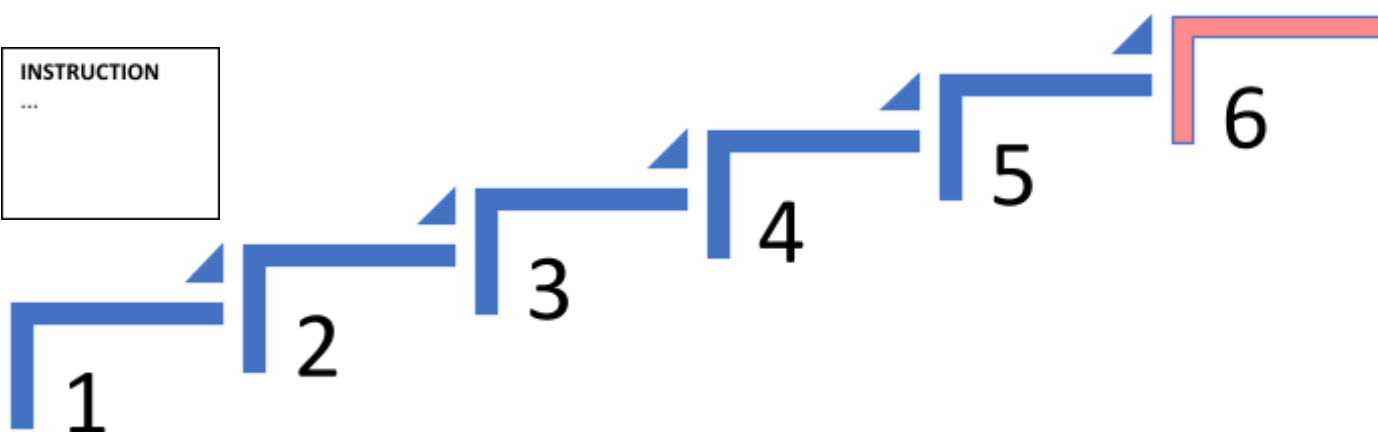
	Long-term memory: Prior learning schema
1	
2	
3	
4	
5	
6	
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8	
9	

	Long-term memory: Future learning schema
1	
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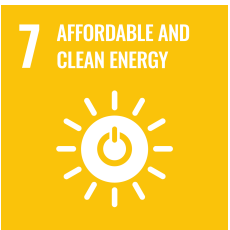




INSTRUCTION



CASE STUDY <TITLE>

Step	Identify a topic / story that is going to be told / explored using GIS	Other
	[LESSON TITLE]	
	[LESSON SUBTITLE]	
	Curriculum context:	
	Target age group:	
LOs	Learning objectives	
	[Ideas for Learning objective statements] • Retrieve prior learning about... • Describe and explain links between... • Describe, explain and evaluate... Can link to SDGs especially: (Choose only those related to the vignette topic and activities)                  	

Res	Key resources and embedded hyperlinks if appropriate	
	e.g. GIS resource; .pptx .csv .doc; video or audio clips	[Thumbnails, if available e.g. for GIS resource(s)]
	Individual exploration: [RESOURCES for students e.g. .pptx .csv .doc; video or audio clips]	

	Learning phases (may be one lesson or a sequence of lessons)	Timing
0	Step 0: Retrieval (e.g. quiz to check prior learning)	min
	Review Retrieval of prior learning about ... Could be a 'Do Now' task or quiz.	
	Check student understanding / misconceptions about ... Are schema in place?	
1	Step 1: Direct instruction / teacher facilitated - schema building begins	min
	New material in small steps Key question(s) and/or concept(s): [BRIEF DETAILS] > Refer to this explicitly as a GIS resource and, if necessary, explain / remind students about what GIS is and how it works etc. Input in small steps using GIS layers to build the narrative . • Step • Step • Step	
	Ask questions (klasleergesprek): Are schema in place? • Key question(s) to check student understanding... • Invite student suggestions (e.g. think-pair-share).	
	Input in small steps using GIS layers to continue to build the narrative . • Step • Step • Step	
2	Step 2: Modelling / Scaffolding Review and Questioning – what data are needed?	min
	Modelling	
	Modelling of individual exploration task (see Step 3) [RESOURCES providing models for students e.g. .pptx .csv .doc; video or audio clips]	

	Scaffolding	
	e.g. guidelines; teacher support; peer support [RESOURCES providing models for students e.g. .pptx .csv .doc; video or audio clips]	
	Obtain high success rate Instructions in ppt; Teacher and peer support	
3	Step 3: Individual exploration	min
	Guide student practice	
	Obtain high success rate	
	Instructions in ppt; Teacher and peer support [RESOURCES so to support students e.g. .pptx .csv .doc; video or audio clips]	
4	Step 4: Review - discussion	min
	Check student understanding (onderwijsleergesprek): Are schema in place?	
	Review of Step 3: Individual exploration Feedback from students about their findings. Corrections discussed.	
5	Step 5: Problem-solving	min
	Independent practice Deliberate practice	
	Anomalies resource prompt discussion: Q+A to check and deepen student understanding	
6	Step 6: Presentation/Assessment (incl peer assessment) sharing of outcomes.	min
	Check student understanding (onderwijsleergesprek): Are schema in place? - Key question(s) to check student understanding... - Invite student suggestions (e.g. think-pair-share).	
	Review of Step B3: Individual exploration [EXAMPLES... - Feedback from students about their findings. Corrections discussed. - Students present findings - Teacher and peer evaluation]	
	Link to next steps in learning	



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Write definitions for these terms (add files if needed) **(ANSWERS) Would be added the main concepts used on the vignette**

<i>Key term</i>	<i>Definition</i>
	Suggestions for creating / research on a concept: You can do it! Where would you look for a definition? (you should consult more than one source) How would you define it? Consult several sources and define yourself in a maximum of 5-6 lines, knowing that... the definition serves to clearly delimit the thematic, temporal and territorial scope of a concept. And enrich it, if appropriate, with the why, how, relations with other elements, behavioural patterns... One or two examples and a significant image, graph or map should be added. Always without the defined word being part of the definition.

