## **PUZZLING UP GEOMORPHOLOGY**

3ºESO — Biology&Geology - 3rd. Term

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IN-19 Assesment and ITC

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# 1. LESSON PLAN AND SUCCESS CRITERIA

LEARNING OBJECTIVES:		loom's konomy	SUCCESS CRITERIA:	
<ol> <li>To compile and summarize the 3ºESO geomorphology vocabulary.</li> </ol>		Remember	Learners recognyze the six main types of geomorphological reliefs.	
To differenciate     landform types and its     parts.	LOTS	Understand	Learners match correctly reliefe landforms with their the definitions.	(0.5)
3. To identify real relief shapes with the geological processes that create them.		Apply	Learners can assign pictures of real geomorphological sites with their correct landform.	
4. To be able to assess onself and others knowledge.		Analyze	Learners can compare the time invested in solving the puzzle activity before Vs after the geomorphology unit, individually Vs teamwork.	
<ol><li>To implement critical thinking skills in the classroom.</li></ol>		Evaluate	Learners can grade their own learning improvement, and also their partners' and the whole class.	
<ol> <li>To involve students in a colaborative learning process.</li> </ol>	HOTS	Eva	Learners obtain better results (less mistakes in less time) working in teams than working alone.	
7. To promote students creativity and hands-on active attitude.		Create	Learners prepare their own next unit puzzle version (earthquakes and vulcanism), using the explained Tarsia APP.  Learners share them with the rest of the class.	

## 2. LESSON ORGANIZATION

GROUPING	LEARNERS	TEACHER/AFL TOOLS	MATERIALS/APP
Big Group	Listen to the teacher instructions.	Gives instructions and anticipates the sctivity steps, but not the expected results.	Short Youtube video about collaborative learning benefits.
Individual	Solve the 8p. puzzle. (2min max.) Record time invested	Assigns the puzzle pieces according to the students skills.	Geomorphology simple puzzle pieces (8pcs).
Pairs	Compare their puzzles. Try solving the 8p. puzzle from scratch. (2min max.) Record time invested	Forms pairs of similarly skilled learners.	Progress table Pencil
Fours	Try solving the puzzle from scratch. (5min max.) Record time invested	Forms groups of four similarly skilled learners. Assigns the puzzle pieces according to the students skills	Geomorphology simple puzzle pieces (16pcs).
Six	Compare their puzzles. Try solving the puzzle from scratch. (5min max.) Record time invested	Forms groups of six similarly skilled students. Assigns the puzzle pieces according to the students skills.	Geomorphology simple puzzle pieces (16pcs).
Six	Calculate improvements (%) of time invested.	Explain learners how to calculate improvement percentages, comparing time invested in fulpilling the activity alone, in pairs, fours and groups of six.	Progress table Calculator Pencil
Individual or pairs	At home, design puzzles for Earthquakes or Vulcanism, our next unit contents.	Grade the homework puzzles.	Textbook Computer Tarsia

## 3. SELF & PEER ASSESSMENTE SHEET

# PRIOR KNOWLEDGE ASSESSMENT (BEFORE THE UNIT)

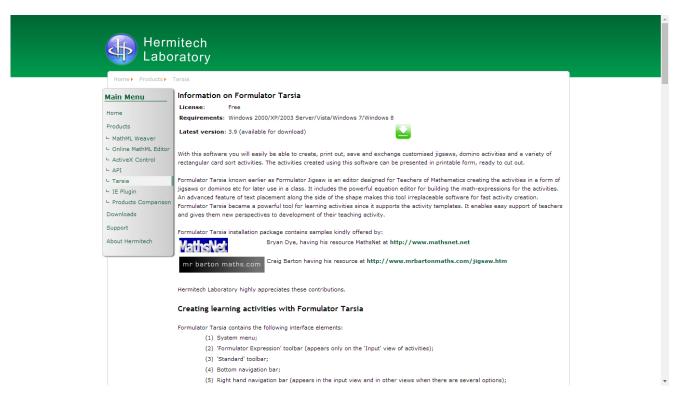
	Time invested			Improvement Assessment			
	Individual	Pairs	Improvement (%)	0-30%	30-65%	65-100%	
8 pieces Puzzle							
	Four people group	Six people group	Improvement (%)	0-30%	30-65%	65-100%	
16 pieces Puzzle							

UNIT DEVELOPMENT

# FINAL SUMMING UP ACTIVITY (AT THE END OF THE UNIT)

	Time invested			Improvement Assessment		
	Pairs BEFORE	Pairs AFTER	Improvement (%)	0-30%	30-65%	65-100%
8 pieces Puzzle						
	Fours BEFORE	Fours AFTER				
16 pieces Puzzle						

## **TARSIA TOOL**



http://www.mmlsoft.com/index.php/products/tarsia

#### Formulator Tarsia



Formulator Tarsia Installation Package, v. 3.9.0.10123





Formulator Tarsia zipped application, v. 3.9.0.10123



Free Software OS: MS Windows

License: free for non-commercial purposes (please see Tarsia License Agreement for more details)



Formulator Tarsia Installation Package, v. 3.8.0994.8113 Free Software OS: MS Windows



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Formulator Tarsia Sample Puzzles by Bryan Dye (http://www.mathsnet.net)



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Formulator Tarsia Sample Puzzles by Craig Barton (http://www.mrbartonmaths.com)



#### Formulator MathML IE Performer



Formulator MathML IE Performer Installation Package, v.3.9.1483.9051 Free Software OS: MS Windows



http://www.mmlsoft.com/index.php/downloads

# How to use TARSIA? Check out this couple of videos!!

**TARSIA EXAMPLE** 

**OUR TARSIA GEOMORPHOLOGY** 

## 3. SELF & PEER ASSESSMENTE SHEET

# **EXAMPLE**

# PRIOR KNOWLEDGE ASSESSMENT (BEFORE THE UNIT)

	Time invested			Improv	ement Ass	essment
	Individual Pairs Improvement (%)			0-35%	35-65%	65-100%
8 pieces Puzzle	120"	40''	33%	<b>(4)</b>		

	Four people group	Six people group	Improvement (%)	0-30%	30-65%	65-100%
16 pieces Puzzle	245"	228"	93%			(1)

UNIT DEVELOPMENT

# FINAL SUMMING UP ACTIVITY (AT THE END OF THE UNIT)

	Time invested			Improv	vement Ass	essment
	Pairs BEFORE	Pairs AFTER	Improvement (%)	0-30%	30-65%	65-100%
8 pieces Puzzle	40''	20"	50%			

	Fours BEFORE	Fours AFTER	Improvement (%)	0-30%	30-65%	65-100%
16 pieces Puzzle	245"	115"	47%			

