ULD Unit: INTRODUCTION TO ORIGAMI Grade: ESO
Lessons: 2 hours

TEACHING AIMS	To introduce the basic origami vocabulary To make students familiar with basic techniques of origami To follow diagrams to make beginners projects To develop cooperative skills To make an introduction of geometric concepts and polygons. To present a Japanese Legend To improve motor skills through the spatial manipulation of paper To improve oral skills To develop visual accuracy and three-dimensional imagination To enhance sequential memory and logical reasoning	
LEARNING OUTCOMES	TO KNOW:	- Definition and history of origami. - Basic vocabulary and different kinds of folding - Identify and describe attributes of two and three dimensional geometric shapes - Solve problems using visualization, spatial reasoning and geometric modeling - Understand and value different artistic forms of expression - Interpret and put into practice processes of mathematical reasoning
	BE ABLE TO:	- Understand step-by-step directions necessary to make an origami figure - Plan and produce a work of art applying media, techniques, and processes with skill, confidence, and sensitivity. - Create three-dimensional shapes from a flat two-dimensional surface. - Use specific vocabulary
	BE AWARE OF:	- multicultural awareness by exploring Japanese history. - Need of use tools and materials in a responsible and orderly way. - Applications of origami techniques to solve problems
THINKING SKILLS	- Improving memory and retention. - Asking for information on the techniques - Organising information: advantages - disadvantages - Improving eye-hand coordination - Identifying and analysing spatial relationships - Applying visual and spatial memory - Understanding and value different artistic forms of expression - Applying techniques of a different artistic language - Understanding the technological aplications of origami - Expresing observations, opinions and suggestions.	

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<table>
<tr><td colspan="3">COMUNICATION</td></tr>
<tr><td>Language of learning</td><td>Language for learning</td><td>Language through learning</td></tr>
<tr><td>Key phrases needed:
The first thing you do is
First, (you) . . .
Then, (you) . . .
Next, (you) . . .
Lastly, (you) . . .

Key vocabulary:
corner, center, middle, spin, rotate, crease, fold, edge, point, unfold, tuck in, flap, reverse fold, shaping, sink, turn over, turn around</td><td>Following instructions
After that,
The next step is to . . .
The next thing you do is . . .

Questioning and answering
What needs to be done?
What do you think we should do?

Developing the given task
The more precise you fold, the nicer it will look.
Crease each step sharply at least three times.
The sharper you fold, the easier it will be to follow the guidelines on the paper to the next step.</td><td>Interacting with class-mates

Dealing with misunder-standing</td></tr>
<tr><td>ACTIVITIES</td><td colspan="2">- Matching word-image / definition-word / definition-image
-Telling sentences using language frames
- Locating basic origami landmarks
- Analyzing diagrams and directions
- Folding a paper to create geometrical shapes.
- Reading and understand texts about origami
- making a Miura-ori folded map</td></tr>
<tr><td>RESOURCES</td><td colspan="2">- Visual and step by step paper exemples
- Glossary of origami words: X001_Origami-vocabulary,.doc
- Language frames, definitions and examples
- Tutorial video: https://www.youtube.com/watch?v=foo1yNyDgV0
- Texts about origami: legend, technological applications of origami, etc. (X001_ORIG_HISTORY, X001_Tech-applications_Orig.odt, X001_Sadako.doc)
- Digital presentation of origami (ppt): X001-origami presentation.ppt</td></tr>
<tr><td>ASSESSMENT CRITERIA

can the student ...</td><td colspan="2">- identify basic vocabulary
- report the sequence of the folds
- understand the sequence of folds to make the bases
- report the order of the folds
- explain the sequence of folds
- communicate a choice
- answer questions about origami history and Sadako’s story
- share a task in group to make a cube</td></tr>
</table>

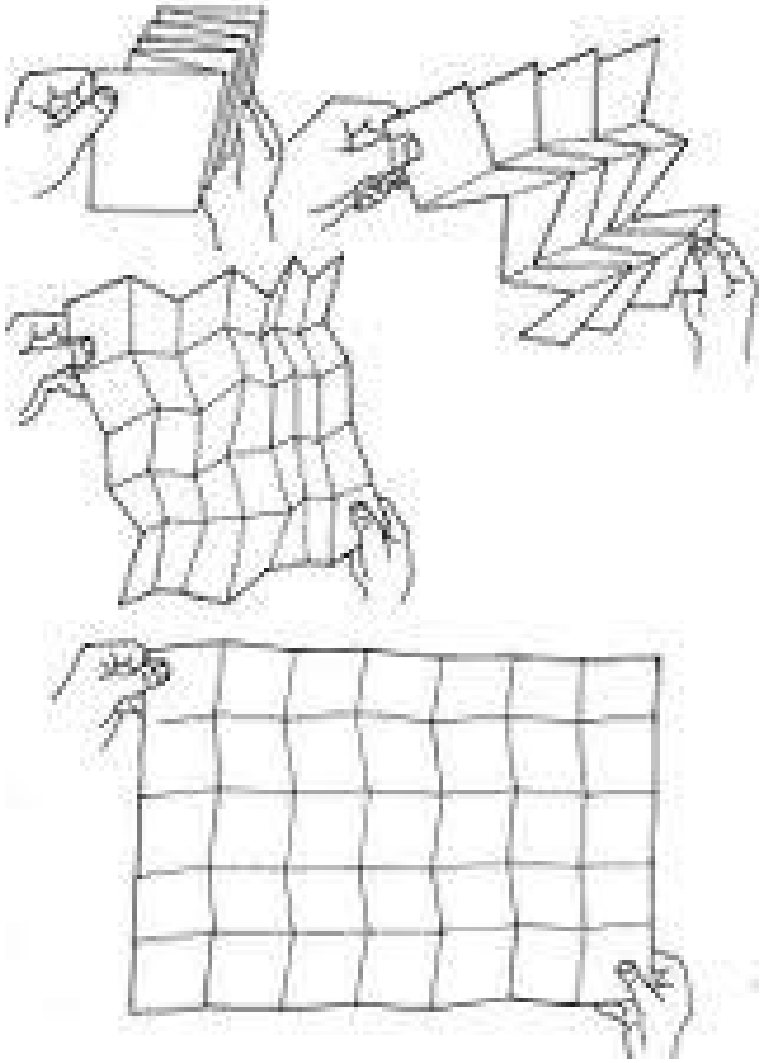
SPECIAL RECOURCES **(STUDENTS WITH SPECIAL NEEDS)**	**Description of the Case Study #1** Difficulties in: * Language comprehension * Events sequencing * Working memory * Following directions * Vocabulary Resources to use with these students: * Preview vocabulary * Easy model step-by-step directions * Pictorial visual aid * Work with classmate * Individual word wall including pictures * Adapted texts **Description of the Case Study #2** Difficulties in: Visually impaired Resources to use with this student: * texts in digital format that can be read with the computer * texts in Braille that can be read several times in order to improve comprehension * step-by-step tactile diagram: inverted dots diagram is used because a blind person has sharp sense of touch to feel the creases in the paper. * Peer Tutoring: have a paired working arrangement (buddy system). It allows the special student to establish a relationship with a classmate with whom they can feel comfortable asking for assistance, and decreases dependency on the teacher

Activity 1: A self-folding map

Maps are generally folded both horizontal and vertical way. They are done one by one. But is there any way to fold at once in both horizontal and vertical ways?
Miura-ori is the answer for it.

The Miura-ori (translation = Miura-fold) is also famous in map folding. The Miura-ori allows a square piece of paper to be folded in such a way that it can be opened (in one motion) by pulling at two opposite corners.

As well, a Miura-ori folded map is less likely to tear at the crease junctions.



http://www2.eng.cam.ac.uk/~ms652/teaching/archeng2012.html

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