



Revised Flowchart and Storyboards: Basics of Origami- Design Warriors

Edited by Instructional Knights

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Introduction

Basics of Origami is an introductory training course designed to acquaint beginning learners with the fundamental folds of origami with basic origami models. The unit under review (Unit 4) focuses on adult learners folding an origami crane. The learning objectives for this unit centered on the basic folding techniques of origami, paper folding terminology, advanced folding techniques, and the importance of following step-by-step instructions for two origami models. The original design team, Design Warriors, utilized the Direct Instruction Model from Joyce, Weil, and Showers (1992) as the guiding model for this unit of instruction. The underlying theory is based on behaviorist approaches to learning and is designed to facilitate learning, sustaining motivation by pacing and reinforcement (Hirumi, 2020). The techniques and instructional tools identified as part of the theoretical framework include practice and feedback, which are essential to building an origami crane. The Instructional Knights review team evaluated the unit based on its adherence to Mayer's (2014) multimedia design principles within the Direct Instruction Model from Joyce, Weil, and Showers (1992).

Flowchart Analysis

Flowchart Revision and Recommendations

The overall focus of the flowchart revisions is to better adhere to Mayer's *Coherence Principle*. The extraneous material was removed from the storyboards to create a seamless learning experience.

The Design Warriors noted in their original design that they followed Joyce, Weil, & Showers Direct Instruction Model (1992). Upon reviewing the instruction, the Instructional Knights determined that while it aligns with the Direct Instruction Model, the design plan can be improved by implementing additional design principles to potentially reduce extraneous cognitive processing and promote greater learning.

The review team first determined that the Unit could benefit from incorporating an introductory lesson. The original flowchart provided "Lesson 1: Select Materials and Prep Workspace." Originally, this section mentioned information that would be covered in later lessons, and for this reason, Frame 1410 was adjusted as an introductory module titled, "Lesson 1: History". This lesson also aligns with the Direct Instruction Model by establishing the lesson content and objectives before starting a new lesson.

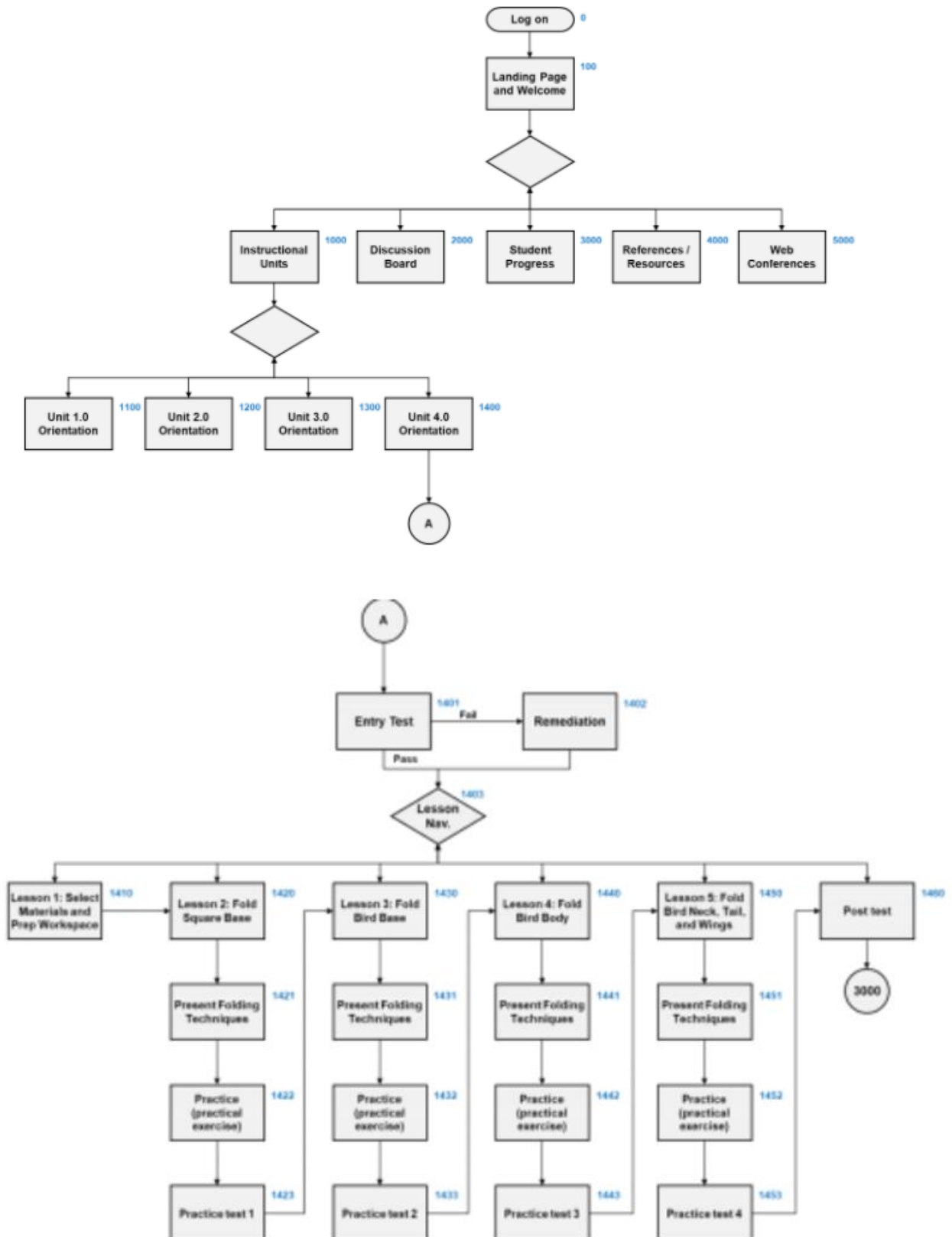
An additional adjustment was done to revise the pacing of the original lessons. The way each section was structured, made the lesson lengthy, and could result in the learner's loss of interest or cause misunderstanding. To remedy this, original storyboards within each lesson were combined to shorten each module to meet the Coherence Principle, and eliminate excessive information, while still adhering to the original application of the Direct Instruction Model (Joyce, 2015).

The flowchart already applied the *Pre-training Principle* in Frame 1401, by measuring previous learning, to ensure the recognition of basic concepts being presented in this Module. This further allowed us to continue applying the Direct Instruction Module (Joyce, 2015) as the flowchart is organized to provide orientation and review first, followed by presentation of new material, and concluding with an opportunity for practice. We believe this order will benefit learners to enhance learning with the incorporated multimedia.

Original Flowchart

Figure 1 depicts the original course level navigation for learners entering the site, as created by the Design Warriors. This includes features provided by the Learning Management System (LMS), such as the discussion board and resources page, and access to the instructional content organized into units. Additionally, it includes an in-depth breakdown of "Unit 4.0 - Folding an Origami Crane", beginning with an entry test and an optional remediation opportunity, followed by five lessons, and a posttest.

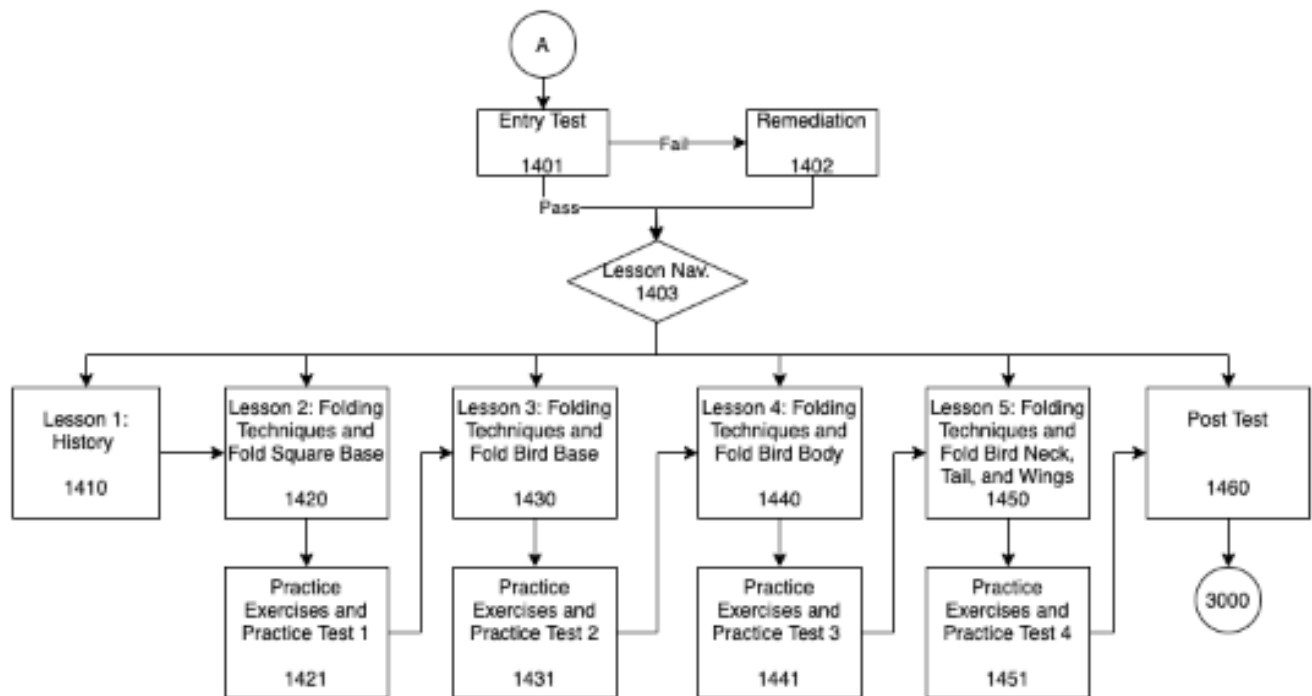
Figure 1: Represents the original flowchart as written by Design Warriors.



Revised Flowchart

Figure 2 depicts the revision process for “Unit 4.0: Fold an Origami Crane”. The Course level site features were omitted from this analysis as they are left at the LMS level and extraneous to this revision process. In Figure 2, the instructional content is organized into lessons for the learner to access sequentially or directly from the lesson-level navigation, enabling learners to set their own pace. Revisions to the flowchart included combining original frames 1420-1421, 1422-1423, 1430-1431, 1432-1433, 1440-1441, 1442-1443, 1450-1451, and 1452-1453. The revised flowchart now depicts fewer frames, including only two frames for each lesson. These revisions were made to better adhere to the Coherence Principle by removing extraneous and repetitive information.

Figure 2: Unit-level site features for Unit 4.0



Storyboard Analysis

Storyboard Analysis and Recommendations

Overall, the Design Warriors’ original storyboards presented regular utilization of Mayer’s (2014) multimedia design principles. Consistently used principles were identified as: the review of entry skills (*Pre-training Principle*); the presentation of performance steps in small, ordered chunks (*Segmenting Principle*); and the use of various images, video, and voice over narrations (*Modality Principle*). This section details revision opportunities for further application of Mayer’s design principles.

Principles for reducing extraneous cognitive processing:

1. Coherence Principle - People learn better when extraneous material is excluded rather than included.

Application to this principle appeared to be a consistent issue across all storyboards. Several lessons included content that was either previously covered, or would be covered again in later lessons. In an

effort to remove extraneous material, the team recommends the revision of Frame 1400 to remove the presentation of the lesson layout, progression, and navigation since these topics are later covered in Frame 1403: Lesson Navigation. Additionally, the topics of material selection and workspace were previously covered not only in earlier units, but also in Frame 1400: Orientation, and again reviewed in the optional Remediation lesson (Frame 1402). Therefore, this information should be removed from Frame 1410, changing its focus to the historical context of the Terminal Learning Objective (TLO), originally found in Frame 1400: Orientation.

The original structure of Unit 4 followed four sequences, each focusing on one Enabling Objective (EO). Within each sequence, there were four lessons to establish one EO. The team suggests the merger of the two sets of folding lessons within the sequence, and then the merger of the two practice lessons within the sequence. For example, merge Frames 1420 and 1421 to create Frame 1420, making the lesson more concise. Additionally, we suggest the merger of the practice lessons with the practice tests. For example, since the remediation reviews how to neatly fold, we recommend the merging of Frame 1422 with 1423 to create Frame 1421, because the original design presents a performance opportunity to practice the folding techniques twice, in succession.

2. Signaling Principle - *People learn better when cues that highlight the organization of the essential material are added.*

The storyboard completed by the Design Warriors did not implement the *Signaling Principle* properly in Frames 1420-1453, and we determined this needed review when signaling the learners. The revised storyboard, in new Frames 1420, 1430, 1440 and 1450 would utilize voice overs that appear in cue with each step in the animated image, additionally the text would change color, signaling each new step. We also determined frame 1460 needed review when adhering to the signaling principle. In the revised storyboard, a student example video was included to show the process and include requirements and expectations. Cues will highlight the essential steps in the assessment video.

3. Redundancy Principle - *People learn better from graphics and narration than from graphics, narration, and printed text.*

The original storyboards were found to not adhere well to the *Redundancy Principle*. For example in Frames 1402 and 1410, we recommended the elimination of the on-screen text since the lesson already uses images and narration.

Frames 1421, 1430, 1431, 1440, and 1450 were also reviewed, and to implement the use of the Redundancy Principle narration was added to give the learner the option to use the narration and folding graphic, rather than the text.

Finally, the review team also suggests the revision of Frame 1460, where we identified the information was only presented via text. To adhere to the *Redundancy Principle*, the revised storyboard will include audio narration and image, while omitting the printed text.

4. Spatial Contiguity Principle - *People learn better when corresponding words and pictures are presented near rather than far from each other on the page or screen.*

Frames 1420-1450 included in the original storyboard, did not properly apply the Spatial Principle. To adhere to this principle, the review team suggests these frames include folding cues with arrows and words to be implemented under the pictures for reference.

5. Temporal Contiguity Principle - *People learn better when corresponding words and pictures are presented simultaneously rather than successively.*

The Instructional Knights noticed an inconsistent application to the *Temporal Contiguity Principle*. Some of the folding lesson storyboards included a design layout with pictures, in succession, of the folds with corresponding written text detailing the steps (applicable to Frames 1422, 1432, and 1441). For consistency, the team advises the revision of Frames 1420, 1430, 1440, and 1450 to follow this model.

Principles for managing essential processing:

1. Segmenting Principle - *People learn better when a multimedia message is presented in user paced segments rather than as a continuous unit.*

The original storyboards maintained essential processing quite regularly and only required editing in two frames. For example, Frame 1440 applies the *Segmenting Principle* by allowing the user to decide whether they would like to follow the voice narrations or follow the text to practice at their own pace. We suggest a revision to Frame 1450 to match the implementation of the *Segmenting Principle* as done in Frame 1440, by providing the user with the same option to decide whether they would like to follow the voice narrations or use text to practice at their own pace.

2. Pre-training Principle - *People learn more deeply from a multimedia message when they know the names and characteristics of the main concepts.*

Overall the original Design Warriors project effectively applied the *Pre-training Principle* with few revisions recommended. Recommendations include Frame 1400; to revise the review of entry skills with a time lapse video of the completion of the TLO. In Frames 1431 and 1451, the multimedia information was outlined in the lesson to provide the learner with the characteristics of the main concepts.

3. Modality Principle - *People learn more deeply from pictures and spoken words than from pictures and printed words.*

The design team found that the original storyboards were in need of considerable alterations to better adhere to the *Modality Principle*. In several frames throughout the course, suggested revisions include the replacement of text with narration and/or adding images. We recommended replacing text with narration in Frames 1420, 1421, 1440, 1441, 1450, 1451, and 1460 to better meet the *Modality Principle*. Additionally, in Frame 1403, revisions were made to the screen by replacing the text with an image, since people learn better with pictures and spoken words.

Principles for fostering generative processing:

1. Multimedia Principle - *People learn better from words and pictures than from words alone.*

In Frame 1403, since there is only text on this screen, we suggest replacing the text with an image and using the text as a script. The suggestion in Frame 1410 is to embed a video narrative of the historical context of the paper crane since people learn better from words and pictures. The *Multimedia Principle* was identified in Frames 1440 and 1450 due to the option to use a mixture of audio, text, and photos on each frame. Upon review of the original practice test lessons, Frames 1442-1443 (now 1441) and

practice test frames 1452-1453 (now 1451), did not apply any multimedia options. We recommend the revised storyboards to apply both image and text, controlled by the user to appear as hints to assist during the completion of the practice test. Lastly, in Frame 1460, a demonstration video was added to utilize an example student video and narration, rather than written text instructions alone.

2. Personalization Principle - *People learn better from multimedia presentations when words are in conversational style rather than formal style.*

The design team suggests that all storyboards be edited to specify the voice over to be human with a conversational tone. In Frame 1410, it is recommended to add an emotional appeal at the end of the lesson to establish a connection between the learner and the TLO. Frame 1460 revision recommendations include the substitution of written words with narration in a conversational style rather than formal.

3. Voice Principle - *People learn more deeply when the words in a multimedia message are spoken by a friendly human voice rather than by a machine voice.*

The recommendation applicable to all storyboards, is to specify the voice over audio as human with a conversational tone, since this would be more appealing to the learner. We also suggest the use of the same voice and tone for all audio narration throughout the unit to maintain consistency. This would be more appealing to the learner.

4. Image Principle - *People do not necessarily learn more deeply from a multimedia presentation when the speaker's image is on the screen rather than not on the screen.*

In the original design the speaker's image was not present. There is no added value to the quality of the instruction with the presence of a talking head, and therefore there is no need for revision.

Storyboard Assessment

Table 1: Storyboard assessment of where original Basics of Origami project adheres to 12 Multimedia Design Principles.

X = principle met
NR = needs revision
NA = not applicable

	Frame 1400	Frame 1401	Frame 1402	Frame 1403	Frame 1410	Frame 1420	Frame 1421	Frame 1422	Frame 1423
Coherence	NR	X	NR	NR	NR	NR	NR	NR	NR
Signaling	NA	NA	NA	X	NA	X	NR	X	NA
Redundancy	NR	NR	NR	NR	NR	NR	NR	NR	NR
Spatial Contiguity	NA	NA	NA	NA	NA	NR	X	NR	NA
Temporal Contiguity	NA	NA	NA	NA	NA	NA	NR	NR	NA
Segmenting	X	X	NA	X	NA	NA	X	X	X

Pre-training	X	X	X	X	X	X	NA	NA	NA
Modality	X	NA	X	NR	X	X	NR	NR	NA
Multimedia	X	NA	X	NR	NR	X	X	X	NA
Personalization	NA	NA	NR	NR	NR	NA	NA	NA	NA
Voice	NR	NR	NR	NR	NR	NR	NR	NR	NR
Image	X	NA	X	NR	NA	X	X	X	NA

Table 1 continued...

	Frame 1430	Frame 1431	Frame 1432	Frame 1433	Frame 1440	Frame 1441	Frame 1442	Frame 1443	Frame 1450
Coherence	NR	NR	NR	NR	NR	NR	NR	NR	NR
Signaling	NA	X	X	NA	NR	X	X	NA	NA
Redundancy	NR	NR	NR	NR	NR	NR	NR	NR	NR
Spatial Contiguity	NA	NR	NR	NA	NA	X	NR	NA	NA
Temporal Contiguity	NA	NR	NR	NA	NA	X	X	NA	NA
Segmenting	NA	X	X	X	NA	X	X	X	NA
Pre-training	X	NR	NA	NA	X	NA	NA	NA	X
Modality	NA	X	NR	NA	NA	X	NR	NA	NA
Multimedia	NA	X	X	NA	X	X	X	NA	NR
Personalization	NR	NR	NR	NR	NR	NR	NR	NR	NR
Voice	X	X	NA	NA	NA	X	NA	NA	NA
Image	X	X	X	NA	X	X	X	NA	X

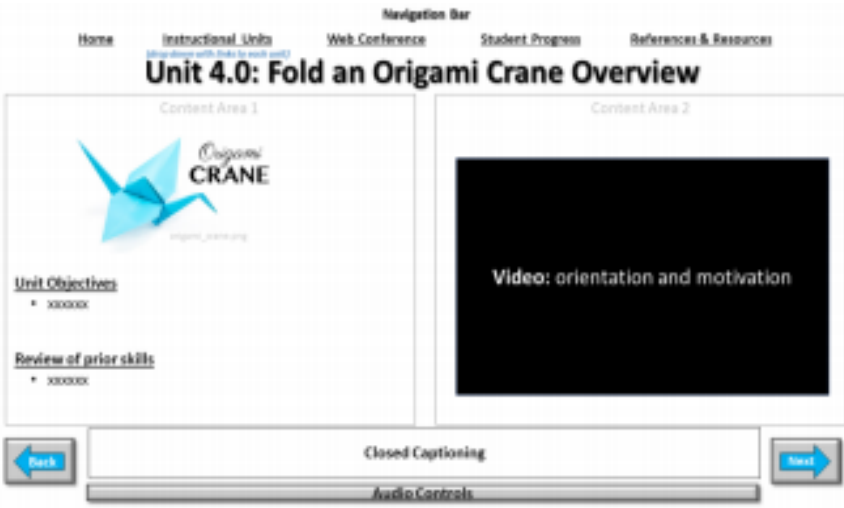
Table 1 continued...

	Frame 1451	Frame 1452	Frame 1453	Frame 1460
Coherence	NR	NR	NR	X
Signaling	X	X	NA	NR
Redundancy	NR	NR	NR	NR
Spatial Contiguity	X	NR	NA	NA
Temporal Contiguity	X	NR	NA	NA

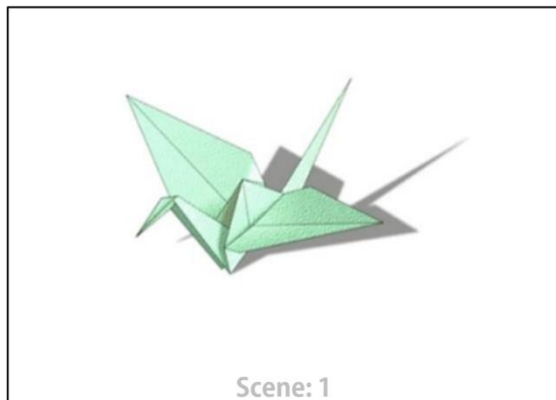
Segmenting	X	X	X	X
Pre-training	NR	NA	NA	NA
Modality	NR	NR	NA	NR
Multimedia	X	X	NA	NR
Personalization	NA	NA	NA	NR
Voice	NR	NA	NA	NR
Image	X	X	NA	X

Revised Storyboards

Project Title:	Origami Basics	Date:	14FEB21	Script:
Lesson Title:	Unit 4.0 Orientation	Topic Title:	Origami Crane	<u>Overview and Orientation Script (human voiceover - conversational tone):</u> Scene 1: “Welcome to Unit 4.0: Fold and Origami Crane. In this unit, you will build on previous skills developed and produce an origami crane.” Scene 2: “Given a suitable workspace and materials selected by the learner, as well as step-by-step instructions
File Name:	U4_overview.html			
Frame #:	1400	Page:	1 of 2	
Links from Screen(s):	1000 (Instructional Units)			
Links to Screen(s):	1401 (Entry Test)			
Frame Description:	Overview and orientation to Unit 4.0: Fold an Origami Crane presenting the Terminal and Enabling Objectives, and a preview of the end product production.			
Screen Layout:				

		including all folds, students will be able to fold an origami crane according to a specified checklist. To successfully accomplish this Terminal Objective, you will accomplish the following Unit Objectives: • EO1: Identify the characteristics of a suitable workspace and materials from memory. • EO2: Fold the paper, producing a square base. • EO3: Fold the paper, producing a bird base. • EO4: Fold the paper, producing a crane body. • EO5: Fold the paper producing a completed crane.” Scene 3: “Before we begin, recall the following proper folding techniques, as demonstrated in this time lapse video of folding a paper crane: • Ensure you have a flat, clean, hard surface to work on in an area free of distractions, with proper lighting.
Screen Description:	<u>Background:</u> White <u>Text Color:</u> Black <u>Text Attributes:</u> Arial (header 32 pt, section titles 14 pt, body text 12 pt)	
Media:	<u>Audio:</u> voice over video reading the script <u>Video:</u> origami_crane_(time_lapse).mp4 <u>Animated GIFs:</u> none <u>Graphic Stills:</u> origami_crane.png	
Developer’s Notes:	Video embed code:	• The paper can be any size as long as it is in the shape of a square. • Select moderately sized paper. If the paper is too small, your folds will be difficult.
Other Instructions:	Closed captioning text of all audio	

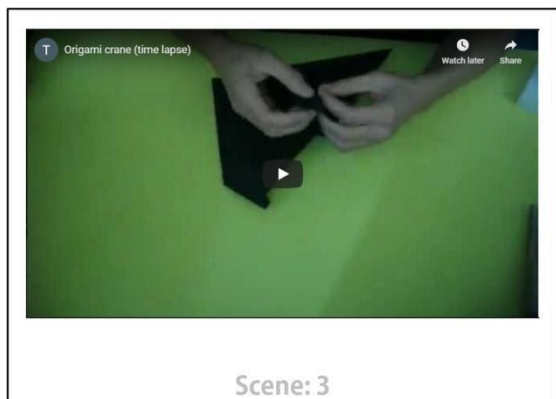
Video Storyboard



Unit Objectives

- **Terminal Objective:** Given suitable workspace and materials selected by the learner, as well as step-by-step instructions including all folds, fold an origami crane according to a specified checklist.
- **EO1:** Identify the characteristics of a suitable workspace and materials from memory.
- **EO2:** Identify the characteristics of a suitable workspace and materials from memory.
- **EO3:** Fold the paper, producing a bird base.
- **EO4:** Fold the paper, producing a crane body.
- **EO5:** Fold the paper, producing a completed crane.

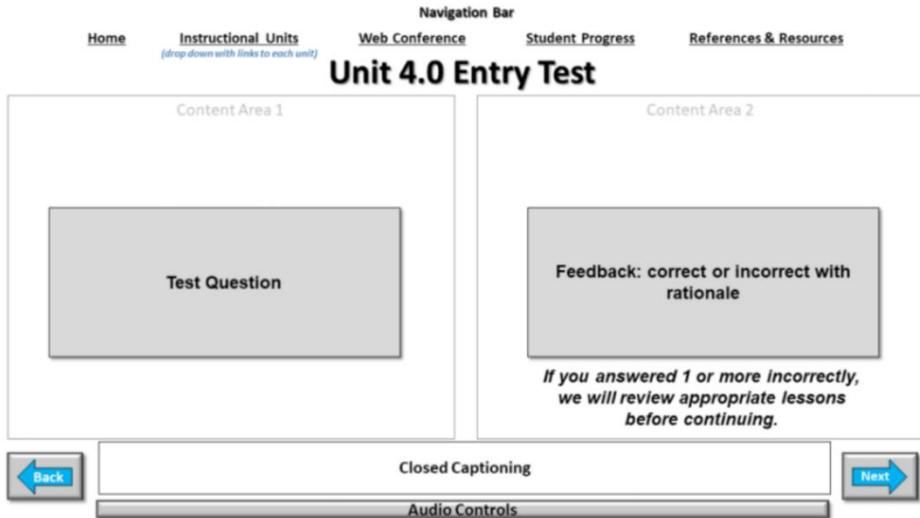
Scene: 2



- Carefully and precisely make each fold using a straight edge.

The resources you will need to complete this unit include discussion boards, practice tests, and access to videos and 3D animations.”

Project Title:	Origami Basics	Date:	14FEB21	Script:
Lesson Title:	Unit 4.0 Entry Test	Topic Title:	Origami Crane	<u>Test Script (human voiceover - conversational tone):</u> “On this page, you will complete a quick test to
File Name:	U4_entry.html			
Frame #:	1401	Page:	1 of 1	

Links from Screen(s):	1400 (Unit 4.0 Orientation)	ensure you recall items present in previous units that you will need for Unit 4.0. Each question will appear on the screen, and be read aloud to you. Be sure to select the best possible answer before proceeding to the next question. A passing score on this test will bypass a remediation activity. To begin the Entry Test, select the Next arrow. <u>Question Number 1</u> Identify the characteristics of a suitable workplace: a. Flat surface b. Sturdy c. Free of distractions d. Clean and dry e. All of the above Click on the best possible answer, and then select the Next arrow to continue. <u>Question Number 2</u> Before beginning to fold, your selected paper must be _____ (square) shaped. Type your answer into the
Links to Screen(s):	1402 (Remediation) 1403 (Lesson Navigation)	
Frame Description:	Entry behavior test for learners to verify acquisition of skills in previous units that apply to Unit 4.0.	
Screen Layout:		
		
Screen Description:	<u>Background</u> : White <u>Text Color</u> : Black <u>Text Attributes</u> : Arial (header 32 pt, section titles 14 pt, body text 12 pt)	
Media:	<u>Audio</u> : voice over reading the test script <u>Video</u> : none <u>Animated GIFs</u> : none <u>Graphic Stills</u> : none	
Developer’s Notes:	Interactive test presenting 1 question at a time and providing instantaneous feedback. If 1 or more questions answered incorrectly, navigate to 1402. Else, navigate to 1403.	box provided, and then select the Next arrow to continue.
Other Instructions:	Closed captioning text of all audio	
Page 2 of 2 Script (continued):		

Question Number 3

True or False: only expensive paper sourced from an art store is suited for folding origami. **(False)**

Click on the best possible answer, and then select the Next arrow to continue.

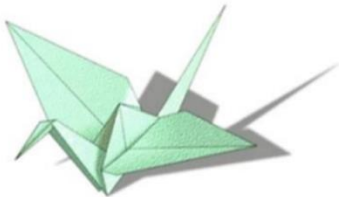
You have reached the end of the test. Please select the Submit button to submit your answers.

After reviewing your feedback, select the Next arrow to continue the lesson.”

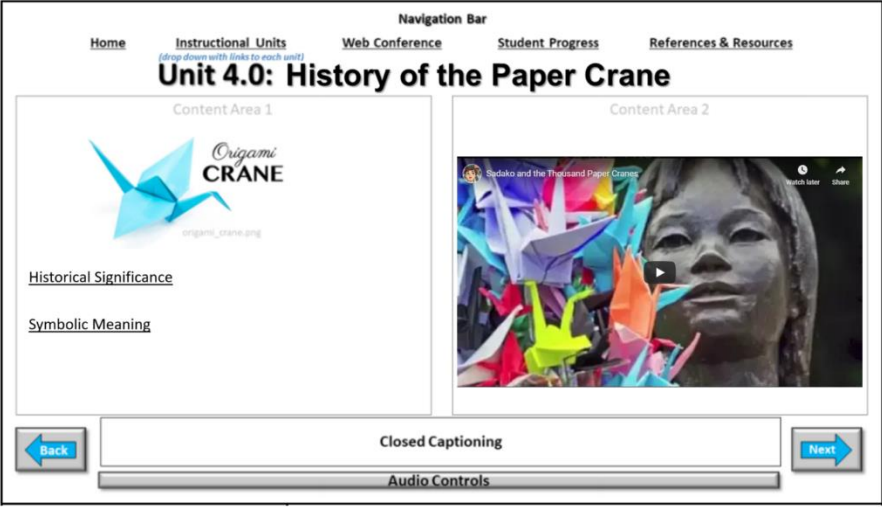
Project Title:	Origami Basics	Date:	14FEB21	Script:
Lesson Title:	Unit 4 Remediation	Topic Title:	Origami Crane	<u>Audio Script (human voiceover - conversational tone):</u> “Prior to beginning a complex origami model like the crane, we should first review some of the basics. In previous units, you learned basic folding techniques to produce a paper airplane, a hat, or a boat. In all of these models, the selection of an appropriate workspace is crucial. You should find a flat, sturdy surface like a table or desk to work on. As origami folding can be complex, having a workspace free from distractions is important. Remember that precision is key and it is vitally important that you make all folds neatly and precisely. It is also important for you to be able to estimate the center, or any other proportion of a section of paper, to make the necessary folds. Prior to beginning any folding endeavor, your paper selection will determine the level of difficulty you will experience. However, the purchase of specialty paper is not necessary. Any thin, square sheet of paper you can find will do. Start with paper approximately 8 inches by 8 inches. The smaller the paper, the harder the folds.”
File Name:	U4_remediation.html			
Frame #:	1402	Page:	1 of 1	
Links from Screen(s):	1401 (Entry Test)			
Links to Screen(s):	1403 (Lesson Navigation)			
Frame Description:	Remedial training of skills from previous units necessary for this unit. This lesson can be bypassed with a passing score on the Entry Test.			
Screen Layout:				
				
Screen Description:	<u>Background:</u> White <u>Text Color:</u> Black <u>Text Attributes:</u> Arial (header 32 pt, section titles 14 pt, body text 12 pt)			

Media:	<u>Audio</u> : voice over reading the script <u>Video</u> : none <u>Animated GIFs</u> : none <u>Graphic Stills</u> : workspace1.png, papersquare.png instructor.png	
Developer's Notes:	NA	
Other Instructions:	Closed captioning text of all audio	

Project Title:	Origami Basics	Date:	14FEB21	Script:
Lesson Title:	Unit 4.0 Lesson Navigation	Topic Title:	Origami Crane	<u>Audio Script (human voiceover - conversational tone):</u> “Each lesson includes detailed steps with an animation of each fold, an activity to practice your folds, and a practical exercise in which you will receive feedback on your folding techniques. After completing all lesson, you can complete the post test on your own, submitting pictures or video of your completed crane, or you can participate in the live ‘Origami Showcase’.
File Name:	U4_navigator.html			
Frame #:	1403	Page:	1 of 1	
Links from Screen(s):	1401 (Entry Test) 1402 (Remediation)			
Links to Screen(s):	1410 (Lesson 1) primarily, 1420 (Lesson 2), 1430 (Lesson 3), 1440 (Lesson 4), 1450 (Lesson 5), 1460 (Post Test)			
Frame Description:	Navigation screen enabling learners to progress in order with the first lesson or access a lesson directly to resume instruction.			
Screen Layout:				

Navigation Bar Home <u>Instructional Units</u> Web Conference Student Progress References & Resources <i>(drop down with links to each unit)</i> Unit 4.0 Lesson Navigator Content Area 1 1. <u>History of the Paper Crane</u> 2. <u>Fold the Square Base</u> 3. <u>Fold the Bird Base</u> 4. <u>Finalize the Crane by Folding the Neck, Tail, and Wings</u> 5. <u>Post Test: The Origami Showcase</u>  Click  to begin the first lesson or directly on a lesson to pickup where you left off Back Closed Captioning Next Audio Controls		Click the Next arrow to begin the first lesson or directly on a lesson to pick up where you left off.”
Screen Description:	<u>Background</u>: White <u>Text Color</u>: Black <u>Text Attributes</u>: Arial (header 32 pt, section titles 14 pt, body text 12 pt)	
Media:	<u>Audio</u>: voice over reading the script <u>Video</u>: none <u>Animated GIFs</u>: none <u>Graphic Stills</u>: origami_crane.png	
Developer's Notes:	Underlined text in content area 1 are hyperlinks enabling direct access to applicable pages.	
Other Instructions:	Closed captioning text of all audio	

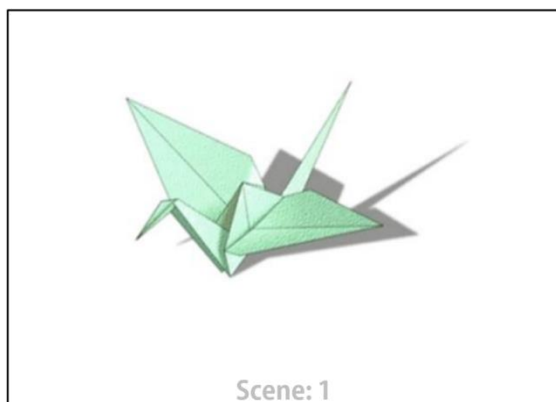
Project Title:	Origami Basics	Date:	14FEB21	Script:
Lesson Title:	Unit 4.0 History of the Paper Crane	Topic Title:	Origami Crane	<u>Video Script (human voiceover - conversational tone):</u> Scene 1: “The traditional paper crane is probably the most famous of all
File Name:	U4_history.html			
Frame #:	1410	Page:	1 of 1	
Links from Screen(s):	1403 (Lesson Navigation)			
Links to Screen(s):	1420 (Lesson 2: Folding Techniques and Fold Square Base)			

Frame Description:	Video introduction to the history of the paper crane including its origin story and use in current or recent events.	
Screen Layout:		
		origami models. It's designed after the Japanese red-crowned crane. In Japanese mythology this crane is known as the "Honorable Lord Crane" and its wings carried souls up to heaven." Scene 2: "The Japanese name for this model is 'Orizuru' which simply means 'folded crane.' 'Ori' is the same 'Ori' that you find in the word 'origami.'"
Screen Description:	<u>Background:</u> White <u>Text Color:</u> Black <u>Text Attributes:</u> Arial (header 32 pt, section titles 14 pt, body text 12 pt)	An ancient Japanese legend promises that if anyone folds a thousand paper cranes they will be granted a wish by the gods.
Media:	<u>Audio:</u> voice over reading the script <u>Video:</u> sadako_and_thousand_cranes.mp4 <u>Animated GIFs:</u> none <u>Graphic Stills:</u> origami_crane.png	In some cases you are granted happiness or good luck. In Japan, the crane is said to live for 1,000 years, which is why one must fold 1,000 of them. You must keep all the cranes to get the wish, though. If you fold one and give it away, that one doesn't count. The origami crane's popularity is largely due to a children's book written by author Eleanor Coerr

		called <i>Sadako and the</i>
Developer's Notes:	Underlined text in content area 1 are hyperlinks enabling direct access to applicable pages. Video embed code: <code><iframe width="560" height="315" src="https://www.youtube.com/embed/fABpssKWCoE" frameborder="0" allow="accelerometer; autoplay; clipboard-write; encrypted-media; gyroscope; picture-in-picture" allowfullscreen></iframe></code>	<i>Thousand Paper Cranes.</i>
Other Instructions:	Closed captioning text of all audio	

Page 2 of 2 Script (continued):

Video Storyboard



[Japanese flag fades to crane fades to tree of cranes]



The story follows a Japanese girl named Sadako who was two years old when the United States bombed Japan at the end of World War II. Due to the fall-out from the bombs, Sadako developed leukemia.

In the hospital, she spent her time folding origami cranes hoping to make 1,000 of them.

According to Sadako's family, she managed to fold approximately 1,400 paper cranes. Many of these cranes have been donated to places such as the 9-11 memorial in New York City, Pearl Harbor, the Museum of Tolerance, and many other places as a symbol of peace.

Scene 3: In this unit you will learn to fold the origami crane through a series of steps. Although it is not required to fold 1,000 cranes, may the act of folding one still bring you peace, like it did for Sadako."

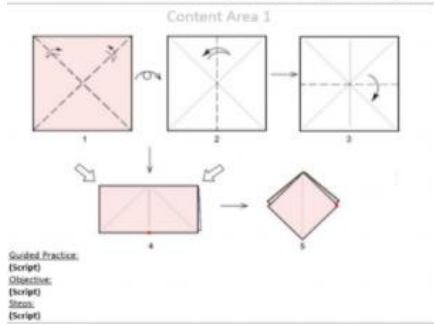
<i>[Japanese grandfather folding cranes with granddaughter, fades to image of Sadako folding cranes in hospital bed]</i>  Scene: 3	
---	--

Project Title:	Origami Basics	Date:	14FEB21	Script:
Lesson Title:	Lesson 2: Folding Techniques and Fold Square Base (Coherence Principle - removing the folding techniques module)	Topic Title:	Origami Crane	<u>Lesson 2 Objectives:</u> • Enabling Objective: Given sized and squared paper, adult learners will fold the paper, producing a square base according to a specified checklist. <u>Review of Prior Skills:</u> • Carefully and precisely make each fold. Optional* using a straight edge to secure creases. • Ensure the workspace is free
File Name:	U4_L2_intro.html			
Frame #:	1420	Page:	1 of 1	
Links from Screen(s):	1410			
Links to Screen(s):	1421			
Frame Description:	Overview of Lesson 2 in Unit 4.0: Folding an Origami Crane Base. The terminal and enabling objectives are highlighted for Lesson 2 while laying out the navigation throughout the lesson. The page also moves through the lesson organization and progression. Guide the learner to practice folding a square base. Stress the importance of having foundation sequence completed correctly.			

Screen Layout:	from clutter, flat surfaced, and level. • Select standard size paper. <u>Lesson Outline:</u> • Lesson Overview • Present folding Techniques • Independent Practice • Test your knowledge-Practice Test 1 <u>Folding Steps</u> 1. Start with one side of the paper facing up and fold in half diagonally. 2. Fold in half again along the dotted line. 3. Fold that flap back. 4. Squash fold this flap down. 5. Turn the model over. 6. Fold the flap over to the left along the dotted line. 7. Squash fold this flap down.
Screen Description:	<u>Background:</u> White <u>Text Color:</u> Black <u>Text Attributes:</u> Arial (header 32 pt, section titles 14 pt, body text 12 pt)
Media:	<u>Audio:</u> voice over reading the script <u>Video:</u> specify the voice over to be human with a conversational tone <u>Animated GIFs:</u> Origami Crane flapping wings (Modality Principle) <u>Graphic Stills:</u> origami_crane.png <u>Checklist of End Result</u> • All folds are neat and precise • All folds are made in sequence

		• Diagonal Mountain fold is along the paper's centerline • Base is shaped like a diamond with four congruent sides • Each side contains 2 squashed flaps along centerline <u>Audio Script</u> “First, perform a diagonal mountain fold by folding your paper from one corner to the other. Next, fold the paper in half again along the dotted line in the image on this page. Fold the flap back and squash down. Turn the model over and fold this flap back and squash down as well. This completes the square base: it should be diamond shaped with congruent sides.”
Developer's Notes:	The GIF should move when the curser is placed over the crane model.	
Other Instructions:	Closed captioning text of all audio	

Project Title:	Origami Basics	Date:	14FEB21	Script:
Lesson Title:	Folding a Square Base Practice (Coherence	Topic Title:	Origami Crane	<u>Guided Practice:</u>

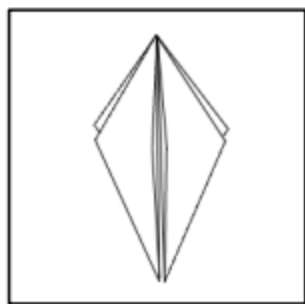
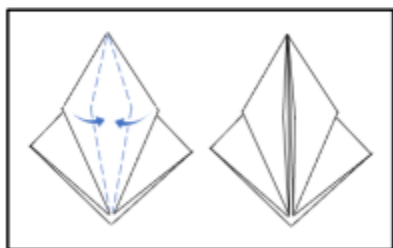
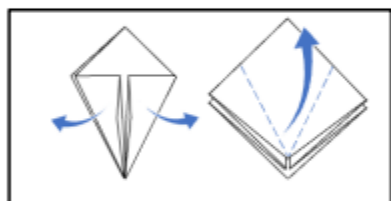
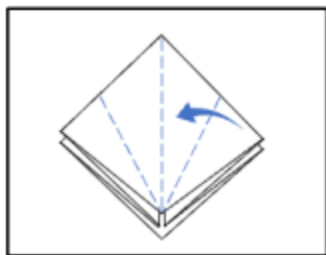
	Principle- combining practice with evaluation)			• The foundation of the origami crane is the square base. When starting the origami crane sequence, the square base needs to be completed correctly in order to build the cranes body. Objective: • Work autonomously and complete the square base folding sequence 3 times. Review the checklist to confirm the square base meets all criteria. Steps: 1) Fold the square into a rectangle and unfold. Then fold the square into a rectangle the other way. 2) Fold the square into a triangle. 3) Hold the paper at two corners and bring the corners together. 4) Press the other two corners into the middle as well, from the outside. Basically, bring all the corners together. Practice Test 1: Checklist 1) All folds are neat and precise: Yes/ No/ Comments 2) All folds are made in sequence: Yes/ No/ Comments 3) Diagonal Mountain folds is along the paper's centerline: Yes/ No/ Comments 4) Base is shaped like a diamond with four equal sides: Yes/ No/ Comments 5) Each side contains 2 squash flaps along centerline: Yes/ No/ Comments Audio Script “ Instructions: It is time to test your knowledge when																							
File Name:	U4_L2_intro.html																										
Frame #:	1421	Page:	1 of 1																								
Links from Screen(s):	U4_L2_practice.html																										
Links to Screen(s):	1430																										
Frame Description:	Guide the learner to practice folding a square base. Stress the importance of having foundation sequence completed correctly. Evaluate the learner’s knowledge when completing a square base.																										
Screen Layout:																											
Navigation Bar Home Instructional Units (drop down with links to each unit) Web Conference Student Progress References & Resources Folding a Square Base Practice Content Area 1  Guided Practice: (Script) Objective: (Script) Status: (Script) Content Area 2 Learner Assessment: Make Square Base Practice-Test: Product Checklist <table><thead><tr><th>Measures</th><th>Yes</th><th>No</th><th>Comments</th></tr></thead><tbody><tr><td>All folds are neat and precise</td><td></td><td></td><td></td></tr><tr><td>All folds are made in sequence</td><td></td><td></td><td></td></tr><tr><td>Diagonal Mountain folds is along the paper's centerline</td><td></td><td></td><td></td></tr><tr><td>Base is shaped like a diamond with four equal sides</td><td></td><td></td><td></td></tr><tr><td>Each side contains 2 squashed flaps along centerline</td><td></td><td></td><td></td></tr></tbody></table> Back Closed Captioning Next Audio Controls				Measures	Yes	No	Comments	All folds are neat and precise				All folds are made in sequence				Diagonal Mountain folds is along the paper's centerline				Base is shaped like a diamond with four equal sides				Each side contains 2 squashed flaps along centerline			
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Coherence and Signaling																											
Screen Description:	<u>Background:</u> White <u>Text Color:</u> Black <u>Text Attributes:</u> Arial (header 32 pt, section titles 14 pt, body text 12 pt)																										
Media:	<u>Audio:</u> voice over reading the script <u>Video:</u> none <u>Animated GIFs:</u> None <u>Graphic Stills:</u> origami_crane.png																										

		completing the bird base. You will have 30 minutes to complete and submit your model for review. There will be unlimited attempts for this exam and at the end you will upload a picture or video of your completed origami bird base for feedback. Refer to the checklist on the right.”
Developer’s Notes:	The GIF should move when the curser is placed over the crane model.	
Other Instructions:	Closed captioning text of all audio	

Project Title:	Origami Basics	Date:	14FEB21	Script:
Lesson Title:	Lesson 2: Folding Techniques and Fold Square Base (Coherence Principle-removing the folding techniques module)	Topic Title:	Origami Crane	Bird Base Overview: • In this lesson, you will learn how to fold an origami bird base using the square base from the previous lesson. This lesson will introduce a new folding technique known as the petal fold. This fold is used in many flower models, but is perhaps best known in the fold progression of the origami crane. It is a combination fold that will build on your prior knowledge of mountain folds, valley folds, and squash folds. This is among the hardest techniques in the crane model and might require
File Name:	U4_L2_intro.html			
Frame #:	1430	Page:	1 of 1	
Links from Screen(s):	1421			
Links to Screen(s):	1431			
Frame Description:	Overview of the bird base, learning objectives, and outline for completing lesson 3.			
Screen Layout:				

Navigation Bar Home Instructional Units Web Conference Student Progress References & Resources Lesson 3: Fold the Bird Base Content Area 1 Folding Steps: [script] Checklist of End Result: [script] Back Closed Captioning Next Audio Controls	more time than other techniques introduced in previous lessons. Lesson 3 Objectives: - Enabling Objective: Given sized and squared paper, adult learners will fold the paper, producing a bird base according to a specified checklist. Lesson Outline: - Lesson Overview - Present folding Techniques
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Video Storyboard



Signaling Principle

Screen Description:

Background: White
Text Color: Black
Text Attributes: Arial (header 32 pt, section titles 14 pt, body text 12 pt)

• Independent Practice

Folding Steps

1. Start by folding both edges of the top flap to the midline
2. Unfold and lift the flap up
3. Fold to the center of the model along the lines created
4. Squash model until flat
5. Repeat on the other side of the model

Checklist of End Result

- All folds are neat and precise
- All folds are made in sequence
- Top flap folds meet side flaps in all sections
- Flattened paper sections along creases
- Petal folds result in kite shaped bird base with 4 congruent sides

Audio Script

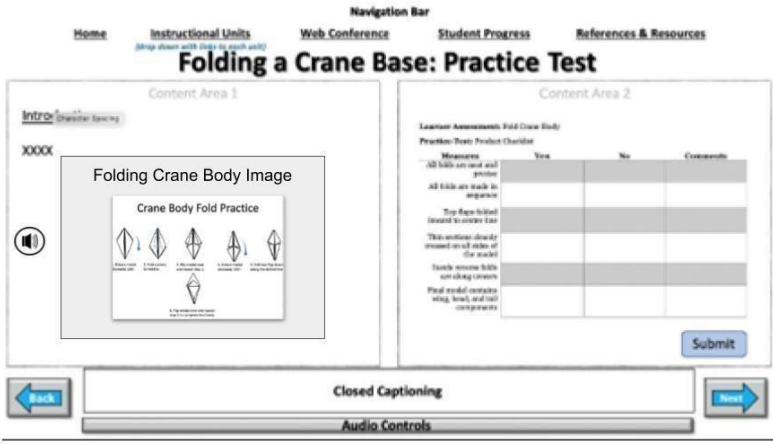
“First fold the edges of the square base to the center of the model. This is called a precrease and it allows the petal fold to be made neater and more efficiently. Next unfold the previous folds and lift the top flap up. Lastly, fold the edges to the center line along the precreases and flatten the model to create a finished bird base.”

Media:	<u>Audio:</u> voice over reading the script. <u>Video:</u> Folding Bird Base <u>Animated GIFs:</u> None. <u>Graphic Stills:</u> None	
Developer's Notes:	N/A	
Other Instructions:	Closed captioning text of all audio	

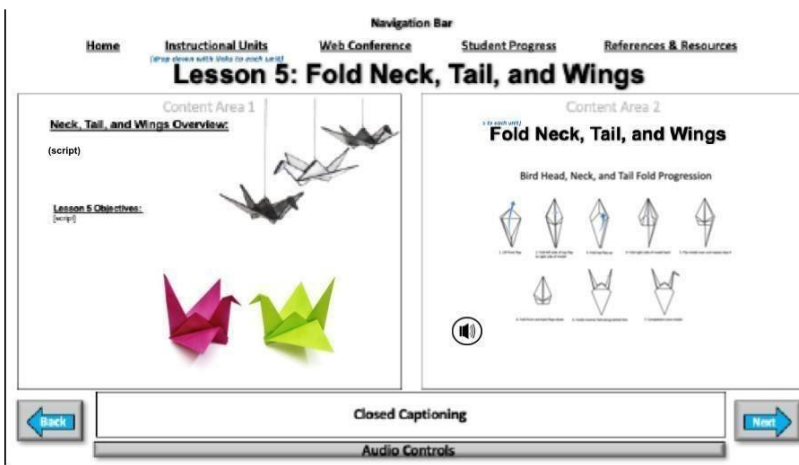
Project Title:	Origami Basics	Date:	14FEB21	Script:
Lesson Title:	Folding a Square Base Practice (Coherence Principle - combining practice with evaluation)	Topic Title:	Origami Crane	<u>Guided Practice:</u> • In order to achieve a precise crane model, the bird base must be completed in a neat and orderly fashion ensuring all corners align and all folds reach their intended ending points. This is a more complex folding technique and may take more independent practice than previous folding techniques <u>Objective:</u> • Work autonomously and complete the bird base folding sequence 3 times. Review the checklist to confirm the square bas <u>Steps:</u> 1. Start by folding both edges of the top flap to the midline 2. Unfold and lift the flap up 3. Fold to the center of the model along the lines created 4. Squash model
File Name:	U4_L2_intro.html			
Frame #:	1431	Page:	1 of 1	
Links from Screen(s):	U4_L2_practice.html			
Links to Screen(s):	1440			
Frame Description:	Guided practice for folding the bird base. Final page of lesson 02 and bird base submission			
Screen Layout:				

 Coherence and Signaling		until flat 5. Repeat on the other side of the model Practice Test 1: Checklist <u>Audio Script</u> “Fold the square into a rectangle and unfold. Then fold the square into a rectangle the other way. Fold the square into a triangle. Hold the paper at two corners and bring the corners together. Press the other two corners into the middle as well, from the outside. Basically, bring all the corners together.
Screen Description:	<u>Background</u>: White <u>Text Color</u>: Black <u>Text Attributes</u>: Arial (header 32 pt, section titles 14 pt, body text 12 pt)	
Media:	<u>Audio</u>: voice over reading the script <u>Video</u>: none <u>Animated GIFs</u>: None <u>Graphic Stills</u>: origami_crane.png	
Developer's Notes:	The GIF should move when the cursor is placed over the crane model.	
Other Instructions:	Closed captioning text of all audio	

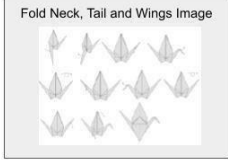
Project Title:	Origami Basics	Date:	14FEB21	Script:
Lesson Title:	Practice Test 3	Topic Title:	Origami Crane	<u>Instructions(Text & voice narrated with a Human voice):</u> It is time to test your knowledge when completing the bird Body. You will have 30 minutes to complete and submit your model for review. There will be unlimited attempts for this exam
File Name:	U4_Practice_test.html			
Frame #:	1441	Page:	1 of 1	
Links from Screen(s):	1440 (Lesson 4: Fold Crane Body)			
Links to Screen(s):	1450 (Lesson 5: Fold Crane Neck, Tail, and Wings)			

Frame Description:	Evaluate the learner's knowledge of folding a crane body.	and at the end you will upload a video of your completed origami bird body for feedback. Refer to the checklist on the right.
Screen Layout:	If you feel stuck at any time, please click on the image box and it will reveal a hint for each step to Fold a Crane Body. Checklist of End Result • All folds are neat and precise • All folds are made in sequence • Top flaps are folded inward to center line • Thin sections cleanly creased on all sides of the model • Inside reverse folds are along creases • Final model contains wings, head, and tail components	
		
Screen Description:	<u>Background:</u> White <u>Text Color:</u> Black <u>Text Attributes:</u> Arial (header 32 pt, section titles 14 pt, body text 12 pt)	
Media:	<u>Audio:</u> Voice over voice reading the audio script <u>Video:</u> N/A <u>Animated Gifs:</u> N/A <u>Graphic Stills:</u> FoldingCraneBodyHints.png	
Developer's Notes:	Grayed out image will be displayed that learners can click on to reveal hints for each step on the folding processImages and text below each step.	
Other Instructions:	Closed captioning text of all audio	

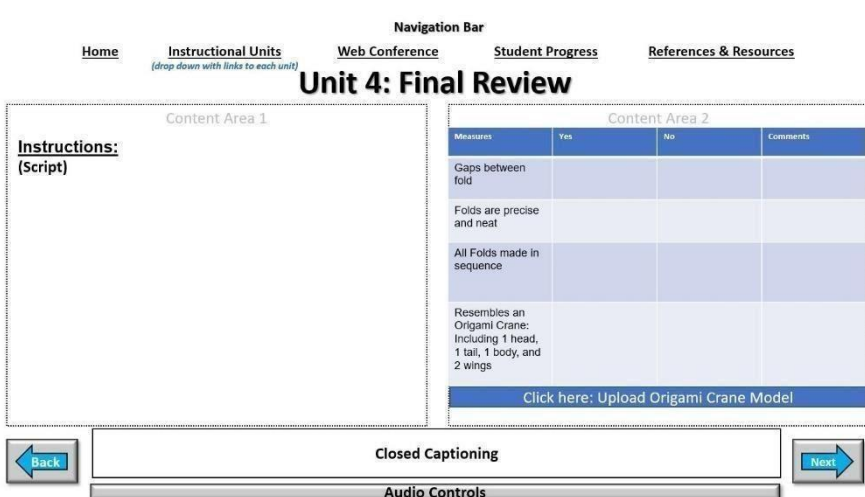
Project Title:	Origami Basics	Date:	14FEB21	Script:
Lesson Title:	Lesson 5: Fold Neck, Tail, and Wings	Topic Title:	Origami Crane	<u>Neck, Tail, and Wings Overview:</u> In this lesson, you will learn how to fold the neck, tail, and wings of the

File Name:	U4_L5_intro.html			origami crane. By using a series of mountain folds and inside reverse folds, learners will successfully finish the origami crane model. <u>Lesson 5 Objectives:</u> Given a properly constructed crane body, adult learners will fold the paper producing a completed crane according to a specified checklist. <u>Folding Steps(within image):</u> • Lift front flap • Fold left side of top flap to right side of model • Fold top flap up • Fold right side of model back • Flip model over and repeat previous step • Fold front and back flaps down • Inside reverse fold <u>Audio Script:</u> “Now that we have constructed the crane base, we will discuss folding the neck, tail and wings. Each fold will be described in detail.” First, lift front flap. Fold left side of top flap to right side of model. Next, fold top flap up. Fold right side of model back. Then, you will flip model over and repeat previous step. Next fold front and back flaps down. And finally, reverse fold. The finish product should resemble that of a bird, you can reference the image under lesson 5 objectives.”
Frame #:	1450	Page:	1 of 1	
Links from Screen(s):	1441 (Practice Test 3) 1403 (Lesson Navigator)			
Links to Screen(s):	1451 (Practice Test 4)			
Frame Description:	Overview of neck, tail, and wings folding techniques.			
Screen Layout:				
				
Screen Description:	<u>Background:</u> White <u>Text Color:</u> Black <u>Text Attributes:</u> Arial (header 32 pt, section titles 14 pt, body text 12 pt)			
Media:	<u>Audio:</u> Voice over voice reading the audio script <u>Video:</u> none <u>Animated Gifs:</u> Folding techniques <u>Graphic Stills:</u> Lesson5_intro.png, Lesson5_result.png			
Developer’s Notes:	Time the 3D animations to match the script Text will change color with each step			

Other Instructions:	Closed captioning text of all audio	
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Project Title:	Origami Basics	Date:	29NOV20	Script:																												
Lesson Title:	Lesson5: Fold Neck, Tail, and Wings	Topic Title:	Origami Crane	<u>Instructions(Text & voice narrated):</u> It is time to test your knowledge when completing the next parts of your crane, neck, tail and wings. You will have 30 minutes to complete and submit your model for review. There will be unlimited attempts for this exam and at the end you will upload a video of your completed origami bird body for feedback. Refer to the checklist on the right. If you feel stuck at any time, please click on the image box and it will reveal a hint for each step to Fold Neck, Tail and Wings. <u>Checklist of End Result:</u> • All folds are neat and precise • All folds are made in sequence • Wings folded down evenly and level to working surface • Head and tail sections distinguishable • Head folded inside neck via inside reverse fold • Resembles an origami crane including 1 head, 2 wings, 1 tail, and 1 body																												
File Name:	U4_L5_practice.html																															
Frame #:	1451	Page:	1 of 1																													
Links from Screen(s):	1450 (L5: Instruction)																															
Links to Screen(s):	1460 (Unit 4 Final Review)																															
Frame Description:	Practice Test for Neck, Tail, and Wings																															
Screen Layout:																																
Home Instructional Units Web Conference Student Progress References & Resources Fold Neck, Tail, and Wings: Test Content Area 1 Introduction (script)  Fold Neck, Tail and Wings Image  Submit Content Area 2 <table><thead><tr><th>Measure</th><th>Yes</th><th>No</th><th>Comments</th></tr></thead><tbody><tr><td>All folds are neat and precise</td><td></td><td></td><td></td></tr><tr><td>All folds are made in sequence</td><td></td><td></td><td></td></tr><tr><td>Wings folded down evenly and level to working surface</td><td></td><td></td><td></td></tr><tr><td>Head and tail sections</td><td></td><td></td><td></td></tr><tr><td>Head folded inside neck via inside reverse fold</td><td></td><td></td><td></td></tr><tr><td>Resembles an origami crane including 1 head, 2 wings, 1 tail, and 1 body</td><td></td><td></td><td></td></tr></tbody></table> Back Closed Captioning Next Audio Controls					Measure	Yes	No	Comments	All folds are neat and precise				All folds are made in sequence				Wings folded down evenly and level to working surface				Head and tail sections				Head folded inside neck via inside reverse fold				Resembles an origami crane including 1 head, 2 wings, 1 tail, and 1 body			
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Screen Description:	<u>Background:</u> White <u>Text Color:</u> Black <u>Text Attributes:</u> Arial (header 32 pt, section titles 14 pt, body text 12 pt)																															

Media:	<u>Audio:</u> Voice over voice reading the audio script (Voice Principle) <u>Video:</u> none <u>Animated Gifs:</u> none <u>Graphic Stills:</u> Lesson 5_foldinghint.png	
Developer's Notes:	Grayed out image will be displayed that learners can click on to reveal hints for each step of the folding process. Images and text below each step(Spatial Principle)	
Other Instructions:	NA	

Project Title:	Origami Basics	Date:	29NOV20	Script:
Lesson Title:	Unit 4: Post Test	Topic Title:	Origami Crane	<u>Human Voice Narration script:</u> “It is time to test your knowledge when completing an origami crane. You will make a video of your performance, starting from a square sheet of paper. There will be unlimited attempts for this exam, and you will upload your final origami video at the end. Follow the link provided to observe an example student video submission.” <u>Post Test: Checklist</u> Gaps between fold: Yes/ No/ Comments Folds are precise and neat: Yes/ No/ Comments All Folds made in sequence: Yes/ No/ Comments Resembles an Origami Crane: Including 1 head, 1 tail, 1 body, and 2 wings: Yes/ No/ Comments
File Name:	U4_posttest.html			
Frame #:	1460	Page:	1 of 1	
Links from Screen(s):	1451 (Practice Test 4) 1403 (Lesson Navigator)			
Links to Screen(s):	N/A			
Frame Description:	Evaluate the learner’s knowledge when completing an origami Crane Model.			
Screen Layout:				
				

Screen Description:	<u>Background:</u> White <u>Text Color:</u> Black <u>Text Attributes:</u> Arial (header 32 pt, section titles 14 pt, body text 12 pt)	***Upload Complete Origami Model.
Media:	<u>Audio:</u> narration, with human voice <u>Video:</u> Example student video linked, including cued highlighted requirements <u>Animated Gifs:</u> none <u>Graphic Stills:</u> none	
Developer's Notes:	Test should be timed and 30 minutes in length.	
Other Instructions:	NA	

References

Dick, W., Carey, L., & Czarey, J.O. (2015). *The Systematic Design of Instruction* (8th edition). Upper Saddle River, NJ: Pearson.

Hirumi, A. (2020). *Grounded Strategies for Instructional Design*.

Joyce, B. R. (2015). *Models of teaching*. Boston, NY: Pearson.

Mayer, R.E. (2021). *Multimedia Learning* (3rd Edition). Cambridge University Press.