

# UNIT PLAN Based on Unit by Adam Newman

## BOUNCING BALL

**Subject(s)** Photography, Photoshop,

**Grade** 10th Grade

**Number of Lessons** 6

**Time Allotment** 50 mins

### Central focus of the Unit/Big Ideas

The central focus of the unit is to understand how artists develop excellence through practice and constructive critique; and reflecting on, revising, and refining work over time. Throughout the unit, students will investigate the significance of animation production and how the process develops awareness of perceptions, knowledge, and experiences.

### Assessments

- **Pre-assessment:** Understanding each students' strengths, weaknesses, engagement level, and their interests. (Individual assessment as a base for both informal and formal assessments to assess students on how much they grow individually throughout the learning segment.)
- Do now questions to assess students' prior knowledge
- **Formative assessment:** Students will be observed throughout warm ups, class discussion, turn & talk, Q&As, check-ins for progress and understanding, and working period.
- **Summative assessment:**  
 Final artwork: how the work reflects the student's understanding of the lesson objectives, materials, and academic languages.  
 Class participation: student's respectful behavior towards the art materials, workstations, peers' art works, time for demo and group discussions.

### Student Support and Differentiation

#### Whole Class:

- Well-designed slideshow with less distraction and clearly stated lesson objectives and tasks
- A step by step guide for animation in Animate
- Guided questions to support student thinking

#### Groups of students with similar needs/Individual students:

- The second round of a demonstration right next to a group of students who have a difficult time following.
- Group support: students will work in groups and give each other notes and suggestions.
- A physical rubber ball to experiment in real life

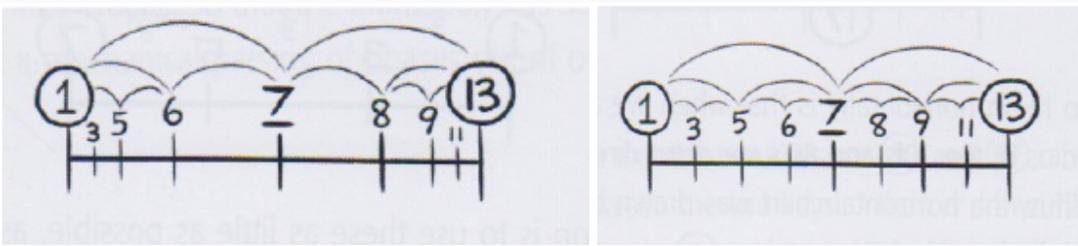
#### Individual students:

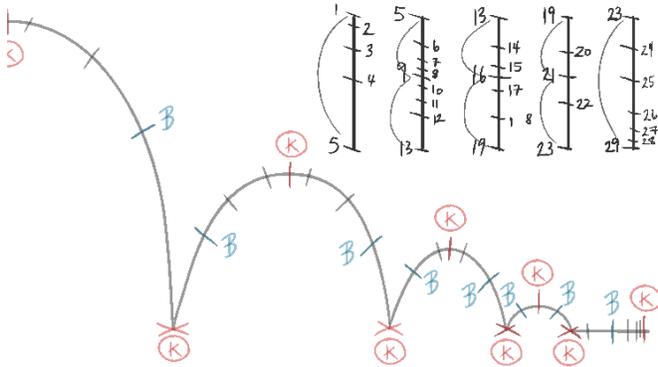
- The teacher will walk around and do one on one demos if necessary.
- Finished students will have an option to help other students.

- Individual assessment

### Students with IEP's or 504 plans:

- Frequent progress check-in for understanding in the beginning, middle, and end of the class.
- An option to focus on one art

Lesson#1 Timing Chart		
<b>Unit Title:</b> Bouncing Ball <b>Lesson Plan #:</b> Lesson 1 <b>Grade:</b> 10th Grade	<b>Length of each period:</b> 50 mins <b>Number of days:</b> 2	<b>Essential Questions:</b> <ul style="list-style-type: none"> <li>- How do artists and designers learn from trial and error?</li> <li>- How does art making process challenge our natural way of seeing and thinking?</li> <li>- What role does persistence play in revising, refining, and developing work?</li> </ul>
<b>Lesson Objectives:</b> Students will be able to... <ul style="list-style-type: none"> <li>- Demonstrate order of operation and create an accurate timing chart for animation</li> <li>- Describe the necessity of timing chart and why professional animators utilize it</li> <li>- Adjust their natural way of working for proper approach to animation</li> <li>- Work collaboratively to revise and refine their work</li> </ul>		
Materials –Artist/ Visual Text /Technology/ Resources:		
Desktop computer, Adobe Animate, Tablet and Pen, paper, pencil		
Visual References/Art Historical References:		
		



Sources: Toon Boom Learn

### Academic Vocabulary:

Adjust, Construct, Revise, Collaborate  
Timing chart, Order of operations, path, keyframe, breakdowns, in-betweens

### NYS Visual Arts Standards

Creating	Presenting	Responding	Connecting
VA:Cr2.1.HSII		VA:Re8.1.HSI	VA:Cn10.1.HSII VA:Cn11.1.HSII

### Task Analysis/Procedure

#### Do Now/Turn and Talk/Discuss

“What does more drawings do to speed in animation?”

“What do less drawings do to speed in animation?”

“Why is this important?”

#### Criteria for Success

Can I...

Define a timing chart? Read a timing chart? Create timing charts with proper speeds from the proper animation order of operations?

#### Definition (Note taking)

A slideshow on timing chart, differentiation between a key, breakdown, and an inbetween.

“What does it mean to slow-out and slow-in animation?”

“What is stagnant or linear timing?”

“Which timing is better for animation?”

#### Analysis/Application

“Why is a timing chart so useful in an animation studio?”

“Draw a timing chart that goes from slow to fast from starting on 1 and ending on frame 15.”

#### Step by Step Demonstration

1. Draw a path
2. Keyframes
3. Breakdowns
4. In-betweens by  $\frac{1}{2}$  (count by 2's, it will be odd numbers)

5. Number and label timing chart by 2's

### Immediate Application

- Fill in the chart with the appropriate timing (inbetweens)
  - Use Photoshop to draw (They must be perfect and done in the correct order!)
  - Save as .PNG and upload your chart to drive
- ex) Lastname\_firstname\_Timechart

## Lesson#2 Ball Bounce

### Unit Title:

Bouncing Ball

### Lesson Plan #:

Lesson 2

**Grade:** 10th

Grade

**Length of each**

**period:** 50 mins

**Number of days:**

2

### Essential Questions:

- What is the purpose of a ball bounce in animation?
- How do animation enhance people's lives and influence culture?
- How do artists and designers learn from trial and error?

### Lesson Objectives:

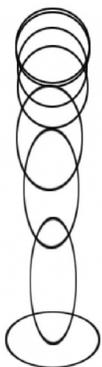
Students will be able to...

- Demonstrate order of operation when creating a ball bounce animation
- Define what secondary action is and when to use squash and stretch in a ball bounce
- Build understandings in foundational principles by animating the basic physics of a ball bounce
- Utilize the basic interface of Adobe Animate

### Materials –Artist/ Visual Text /Technology/ Resources:

Desktop computer, Adobe Animate, Tablet and Pen

### Visual References/Art Historical References:



Source: SkillShare



Source: Angry Animator

### Academic Vocabulary:

Analyze, Observe, Discuss, Apply

Squash and stretch, secondary action, retain, volume, anticipation, impact

### NYS Visual Arts Standards

Creating	Presenting	Responding	Connecting
VA:Cr2.2.HSIII VA:Cr3.1.HSIII		VA:Re9.1.HSII	VA:Cn10.1.HSII VA:Cn11.1.HSII

### Task Analysis/Procedure

#### Do Now/Turn and Talk/Discuss

“What is the order of operation?”

“Make a timing chart for a ball bounce”

#### Criteria for Success

Can I...

Define squash and stretch

Create a timing chart and animation of a ball bounce using squash and stretch

#### Definition (Note taking)

Squash and stretch retain volume. Volume is retained if you can put the same amount of water in it.

Stretch: When it extends and thins

Squash: When it flattens and widens

#### Predict

“When do you stretch in animation?” → 1) pulled 2) when its fastest

“When do you squash in animation?” → 1) on impact 2) anticipation

#### Step by Step Demonstration

1. Setting a scene in Animate
2. Name the first layer “TC” for Timing Chart
3. Go to frame 25 and control click and hit Insert Keyframe
4. Lock the “TC” layer

5. Create a new layer and name it “ball” (on top of TC layer)
6. Control click the frame you want to draw on and hit Insert Blank Keyframe to draw the new frame
7. Draw one frame at a time in the order of operations

#### Immediate Application

1. Perfect timing chart for a ball bounce (in a TC layer)
2. Ball bounce animation on another layer named “ball”
3. Insert rules of squash and stretch

### Lesson#3 Arcs

#### Unit Title:

Bouncing Ball

#### Lesson Plan #:

Lesson 3

Grade: 10th Grade

#### Length of each

period: 50 mins

Number of days: 2

#### Essential Questions:

- How do animators use timing and spacing to create a ball bounce in arcs?
- What role does persistence play in revising, refining, and developing work?
- How do knowledge and skills in the arts broaden career opportunities?

#### Lesson Objectives:

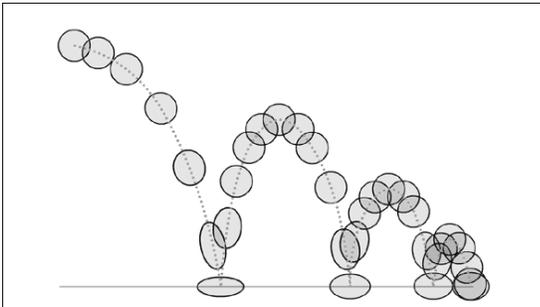
Students will be able to...

- Animate a bouncing ball in an arc path to analyze timing and spacing in animation
- Practice proper testing strategies to revise and refine their animation
- Demonstrate order of operation when creating a ball bounce in arcs
- Understand how to create animation effectively and efficiently by using Adobe Animate

#### Materials –Artist/ Visual Text /Technology/ Resources:

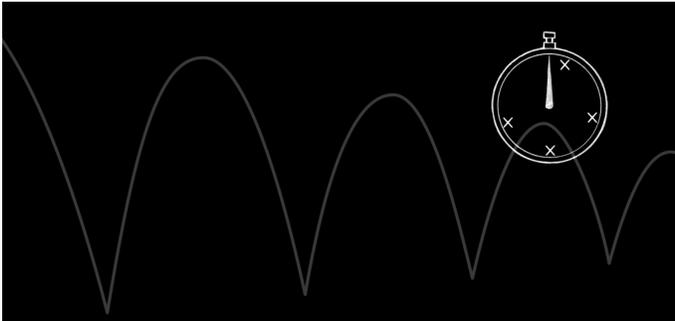
Desktop computer, Adobe Animate, Tablet and Pen

## Visual References/Art Historical References:

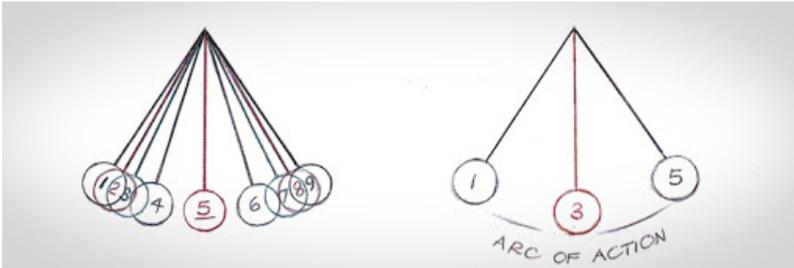


VISIT [WWW.ANGRYANIMATOR.COM](http://WWW.ANGRYANIMATOR.COM) FOR ANIMATION TUTORIALS

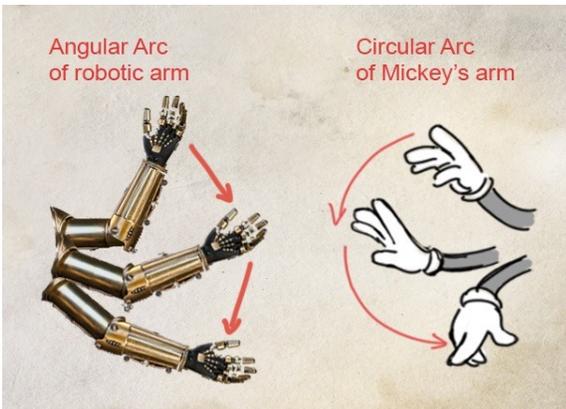
Source: [www.angryanimator.com](http://www.angryanimator.com)



Animation Basics: The Art of Timing and Spacing - Ted Ed



The Animator's Survival Kit (Published 2001) - Richard Williams



Source: [www.animationmentor.com](http://www.animationmentor.com)

## Academic Vocabulary:

Analyze, Observe, Discuss, Apply  
Arc, Testing Strategy, Timing, Spacing, Decay

## NYS Visual Arts Standards

Creating	Presenting	Responding	Connecting
VA:Cr2.1.HSII VA:Cr3.1.HSIII	VA:Pr4.1.HSIII VA:Pr6.HSII	VA:Re8.1.HSI	VA:Cn11.2.HSI

## Task Analysis/Procedure

### Do Now/Turn and Talk/Discuss

1. Create an accurate timing chart for the ball bounce below
2. Predict the path of this ball bounce if it keeps bouncing. Draw out what you think it'll look like.

### Criteria for Success

Can I...

Have my bouncing ball follow arcs?

Use a testing strategy and properly apply to my animation?

Use proper timing and spacing to slow up or slow down an action?

### Definition (Note taking)

- What is an arc?
- Testing Strategy: When animating the entire arcs with decay of a ball, animate the first bounce and test it before you apply it to the rest of your animation.

### Step by Step Demonstration

1. Setting a scene in Animate
2. Name the first layer "TC\_ARC" for Timing Chart
3. Draw your timing chart
4. Go to your last frame and control click and hit Insert Keyframe
5. Lock the "TC\_ARC" layer
6. Create a new layer and name it "ball" (on top of TC\_ARC layer)
7. Control click the frame you want to draw on and hit Insert Blank Keyframe to draw the new frame
8. Draw one frame at a time in the order of operations

### Common Mistakes

"Numbers on the timing chart are frame numbers, not numbers for animation order."

"Breakdown and in-betweens by 1/2!"

### Immediate Application

Novice:

Create an accurate timing chart for the first 2 arcs and animate your ball bouncing

Intermediate:

Create an accurate timing chart for the first 2 arcs and animate your ball bouncing with squash and stretch

Advanced:

Create the art and timing chart for the entire ball bounce and decay of a ball with squash and stretch

### Rubric

	Advanced 5	Proficient 4-3	Developing 1
Understanding of Contents and Tools	Final work clearly reflected understandings of lesson contents and digital equipment, demonstrated good craftsmanship and details	The work was completed, showed an understanding in lesson contents and digital equipment	The work was incomplete, did not show an understanding in the lesson contents and digital equipment
Following Instruction & Accuracy	Final work showed clear understanding in timing chart, arcs, squash and stretch, demonstrated advanced techniques and details	Final work showed evidence of following instruction: timing chart, arcs, squash and stretch	The work was underdeveloped and unclear, did not show any evidence of following directions
Class participation & Behaviors	Actively participated during class discussions, demonstration, and group critiques, showed respect for peers, classroom, and digital equipment	Attentive during class discussions, demonstration, and group critiques, did not disturb class and peers	Did not pay attention throughout the unit nor respect the class, classroom, and digital equipment
Feedback ( /15):			

## Student Samples

