Workshop 1

# Introduction

By the end of this workshop:

* Students will have an idea of what their video will be like: audience, style and topic.
* Understand the video plan document, understand that they must upload it by next workshop in 5 weeks – 4 weeks plus the mid-semester break – and be prepared to present it to their peers in order to receive feedback.
* Understand the requirements for the assessment during the next workshop (video peer review), and what they are going to get out of it.
* Students will understand the Processing functions really well, and will understand the templates well enough that they can modify them to their own ends. Particularly map(), loops and how to get data from a Table object.
* Students who work through the Processing activity will have their own copy of the Processing template they can use to build their assessments.

In this workshop:

## Video

## Get a recap of **Narrative Structure**;

## Pick a **Topic** related to this course and justify it;

## Select an **Audience** for their video from the list we provide;

## Select a **Style** for their video from the list we provide.

## Review the **Video Plan Document**.

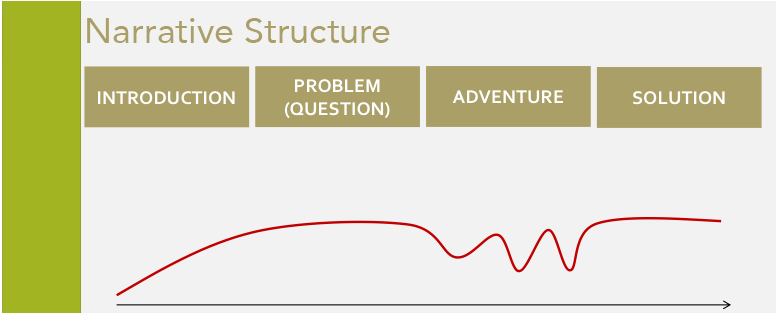
## Processing

* Recap hello.processing.org material
* Recap worksheet material (for loops, map() and Table)
* Build example described in the prework from scratch and explain as you go.

# Narrative

*Students will have seen this before, so don’t be so worried about going over it quickly*

You can use Narrative Structure to organise your discussion of your Topic. You can use Narrative Structure for any of the video Styles and for any Audience.



* Here is an example of **narrative structure**:
  + **Situation**: Cat is walking down the street on a sunny day
  + **Complication**: Something scares the cat up a tree
  + **Adventure**: Attempts to rescue the cat drive it further and further up the tree
  + **Solution**: When it seems that the cat is going to fall and die, the cat is rescued in a surprising and satisfying way
* This can be applied to many forms, such as to an **essay**
  + **Situation**: Set up the **situation** or current understanding of the topic of your essay.
  + **Complication**: Introduce your topic, which disrupts or **complicates** this situation.
  + **Adventure**: Discuss the complexities of your topic.
  + **Solution**: Reach a **solution** that enlarges your reader’s understanding of the topic.

Here’s a good example of using it in a science video from SciShow

<https://www.youtube.com/watch?v=gX18QqFX8_k>

Situation: Can we breathe ever breathe water

Complication: But we may be able to breathe a different liquid

Adventure: Potential of being able to breathe PFCs, etc…

Solution: There are some promising applications!

One other example:

What is this video missing?

<https://www.youtube.com/watch?v=8nHBGFKLHZQ>

(It’s a bit fun and kind of silly, but still communicates scientific concepts)

Situation: What happens if a black hole the size of the coin appears near you?

Complication: It depends – does it have the mass or the size of a coin?

Adventure: Discussion/comparison of the two situations

Solution: ?? Where’s the payoff?

# Topics

Students will have to select a **Topic** for their video. The Topic must relate to the content of this course. The content of the course is defined by the Unit Learning Outcomes, which are in the Unit of Study Outline in CANVAS:

UNIT LEARNING OUTCOMES

After successfully completing this Unit, you will be able to:

1. Describe how the structure and function of body systems interrelate for normal human activity;
2. Explain how the tight integration of complex cellular and whole-body mechanisms underpin homeostasis;
3. Explain the current challenges and emerging solutions facing human biology research;
4. Communicate key concepts in biology to diverse audiences through a variety of media;
5. Work independently and in groups to analyse and evaluate important questions in human biology;
6. Demonstrate competence in core laboratory and related skills;
7. Collect and analyse data related to human biology;
8. Appreciate the role that the science of human biology plays in contributing to the betterment of society as a whole;
9. Develop the skills for self-managing and successful learning at university.

Students will have to justify how their topic relates to the course.

* Suggest that students select a topic from the lectures ***which they will attend before they hand in the video*** – as they will have access to a lot of that information.

# Video Audiences

Students have to choose a target audience for their video from the following list:

Primary school children

Peers/First year university students

General public

Promoting a government agenda

This video is helpful in showing how a concept can be explained at different levels of complexity:

<https://youtu.be/sweN8d4_MUg>

### 1 Primary school-aged children

#### Examples

The Sci Guys: Science at Home: Air Pressure Can Crush

[https://www.youtube.com/watch?v=DCLvwk3zhh8](https://www.youtube.com/watch?v=xg5NiOwf_Zw)

SciShow kids: Salt’s Secret Powers

<https://www.youtube.com/watch?v=BaBRoGc4gOM>

The Spangler Effect: Egg in a Bottle

[https://www.youtube.com/watch?v=35cgB5Z3GJs](https://www.youtube.com/watch?v=22MPLh15jW0)

#### Attributes

* Use simple language;
* Show practical examples;
* Relate concepts to things they know (eg: when you have a hot drink you blow on it: a car radiator works the same way…)
* Keep facts bite-sized;
* High-energy presentation;
* Maybe include a *partner* or *friend* that helps the presenter by asking questions that the audience might have, and answers some questions that the presenter asks;
* Use science to explain something that a child may notice and ask about.

**NB: Make sure to tell viewers to *ask an adult to help* if you encourage them to do an experiment involving anything sharp, hot, breakable and so on.**

### 2 Peers/First-year university students

#### Examples

Armando Hasudungan

<https://www.youtube.com/user/armandohasudungan/videos>

*Science - Yeast Experiment: measuring respiration in yeast.*

[*https://youtu.be/Cngt2HmJuSo*](https://youtu.be/Cngt2HmJuSo)

*Numberphile: Squaring the circle:*

[*https://youtu.be/CMP9a2J4Bqw*](https://youtu.be/CMP9a2J4Bqw)

**Attributes:**

* You can assume familiarity with technical terms;
* You can assume the viewer is interested in the topic and will pay attention;
* You don’t have to rely on being as entertaining as content for primary school children or the general public;
* You do need to pitch the level of complexity at the right level though.

### 3 General Public/Science Communication

Physics Girl: why do mirrors flip horizontally (but not vertically)?

<https://youtu.be/vBpxhfBlVLU>

VSauce: would headlights work at the speed of light?

<https://youtu.be/ACUuFg9Y9dY>

Veritasium: Anti-gravity wheel:

<https://youtu.be/GeyDf4ooPdo>

*The Brain Scoop* — Mammoths vs. Mastodons: Can we 'de-extinct' them both?

<https://youtu.be/2NygtUEvY9k>

**Attributes:**

* Entertaining;
* Topics are relatable;
* Presenters are friendly;
* Concepts are less sophisticated than for university students

### 4 Promoting a Government Agenda

**Examples:**

*ScienceCasts: A Supermoon Trilogy*

<https://youtu.be/A4v5YgC9vkE>

*CSIRO: Graphene: water filter of the future*

<https://youtu.be/VjMfiuUG6tA>

*WHO: What is antimicrobial resistance (AMR)?*

<https://youtu.be/LHOlPmSJn_8>

**Attributes:**

* Authoritative;
* Serious;
* Formal;
* Often use graphics on screen;
* Often includes facts and figures;
* Uncontroversial.

## Styles in Spark

Here is the list of **Styles** in Spark. These styles are templates that Spark uses to format the video. Students need to choose one:

* Promote and Idea
* Tell What Happened
* A Hero’s Journey
* Show and Tell
* Personal Growth
* Teach a Lesson
* An Invitation
* Choose your own

# Video Plan Document

Show example video plan document

* Explain what each column of the plan is, and why it is used.
* Explain that this is the kind of document that is used in industry to pitch a video project, from a web spot or an ad to a TV episode.
* Explain that they will ***upload this before the next living data workshop in week 7/8***

# Processing

**Review of hello.processing.org/fundamentals in tutorial work:**

Variables (declare/assign, also variable types)

Functions (parameters)

Combine variables and functions

Setup/draw blocks (what they do)

Do something like moving a circle across the screen to combine all so far.

If statements (what they do)

If variable is greater than screen width, move circle back to the other side

**Explain Loops/Tables**

We will be drawing a simple line chart to show a level of activity over some amount of time.

Explain map() function (also use println() to output) and move circle to middle of the screen by mapping a variable from -1, 1 to 0 to width

e.g.:

x = map(0.5, -1, 1, 0, width);

y = map(-0.75, -1, 1, 0, height);

Explain *why* this is useful

i.e.

we will be taking a data point from a range of 0 to 0.5 and we want to show it on the screen somewhere. The map function just makes that easy.

Build the example table in the workshop sheet from scratch with the students following along

**Notes**:

* You may also want to include a minimum value, that you get from the same for loop that makes the maximum value.
* You may also want to use some of the sample data, as well as the synthetic data I used in the prework
  + Workshop materials students are downloading: <https://www.dropbox.com/s/mjqgifjrgzizrg9/Living%20Data%20Workshop%201.zip?dl=0>
  + Sample data <https://www.dropbox.com/s/ctxxl6wpqjv32yt/hours_data.csv?dl=0>
* This is explaining a process for how you would put this all together, but students can use this as a template
* Open the .csv file to look at what is there, also show how to add a file to processing (drag onto the sketch window)
* Think about issues students may have:
  + Make sure they name columns correctly when they use something like   
    int steps = table.getRow(i).getInt(“steps”);  
    as this will cause a lot of confusion if they misspell the column header

**Example students saw in the worksheet**:

// somewhere to store the data

Table table;

// the total number of days

float numDays;

// the maximum steps from our data, we will start at 0

float maxSteps = 0.0;

// setup the sketch, run setup() once at the start

void setup() {

// tell the sketch window how big it will be

size(800, 450);

// add the data to our table. Note: our data does have a header row

table = loadTable("data.csv", "header");

// user feedback : how many rows are in the table

println(table.getRowCount() + " total rows in table");

// assign the number of rows to our numDays variable

numDays = table.getRowCount();

// for each table row...

for (int i = 0; i < numDays; i++) {

// temporarily store which day and how many steps you did

int day = table.getRow(i).getInt("day");

int steps = table.getRow(i).getInt("steps");

// was today was the day you did the most steps so far?

// save the bigger value out of maxSteps and today's steps in maxSteps

maxSteps = max(maxSteps, steps);

// user feedback: how many steps did I do today

println("On day", day, "your step count was", steps);

}

}

// end setup()

// draw() is the part of the sketch that runs continuously

void draw() {

background(255);

for (int i = 1; i < numDays; i++) {

float x1 = map(i-1, 0, numDays, 10, width - 10);

float y1 = height - map(table.getRow(i-1).getFloat("steps"), 0, maxSteps, 10, height-10);

float x2 = map(i, 0, numDays, 10, width - 10);

float y2 = height - map(table.getRow(i).getFloat(1), 0, maxSteps, 10, height-10);

line(x1, y1, x2, y2);

}

for (int i = 0; i < numDays; i++) {

float x = map(i, 0, numDays, 10, width - 10);

float y = height - map(table.getRow(i).getFloat("steps"), 0, maxSteps, 10, height-10);

fill(0);

ellipse(x, y, 10, 10);

}

}

// end of draw();