



## Welcome to our 3D workshop!

This workshop is designed to provide you with the skills to:

- **Search** for 3D materials online
- **Embed** 3D objects into Canvas
- **Create** customized 3D objects from existing models

*Please have a browser open on your computer to access:*

- [Sketchfab.com](https://sketchfab.com)
- [A Canvas course page you can edit](#)



# 3D Virtual Objects in the Classroom

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Project Coordinator, UBC Studios

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### UBC Studios



ubcstudios



@StudiosUbc

### UBC Emerging Media Lab



ubc\_eml



@ubc\_eml

### Suzie Lavallee



Suzie\_lavallee



@LavalleeSuzie



## Workshop Overview

1. Why use 3D objects?
2. Find and re-use existing 3D models
3. Deploy 3D objects in Canvas
4. Plan student interactions with the 3D models
5. Create learning activities using Sketchfab
6. Use cases: Faculty of Arts
7. Looking forward





## *Why use 3D models in your course? A few words from our collaborators*

*“...students... appreciated the option to control the 3D model on their own and decide where to look at, where to zoom for a closer look, and spend as much time as they want on a specimen.”*

- Cole Burton, UBC Forest Resources Management

*“Students can observe small details on the 3D pine cone models. These details were difficult to point out on a live specimen during a face-to-face class.”*

- Sally Aitken, UBC Forest and Conservation Sciences



## *Why use 3D models - even for F2F courses?*

1. Enable and enhance flipped classroom design
2. Accommodating large class sizes in labs
3. Accessibility and distance education
4. Contribute to publicly-available resources
5. Access to rare, fragile and inaccessible items
6. Better than real life demonstrations





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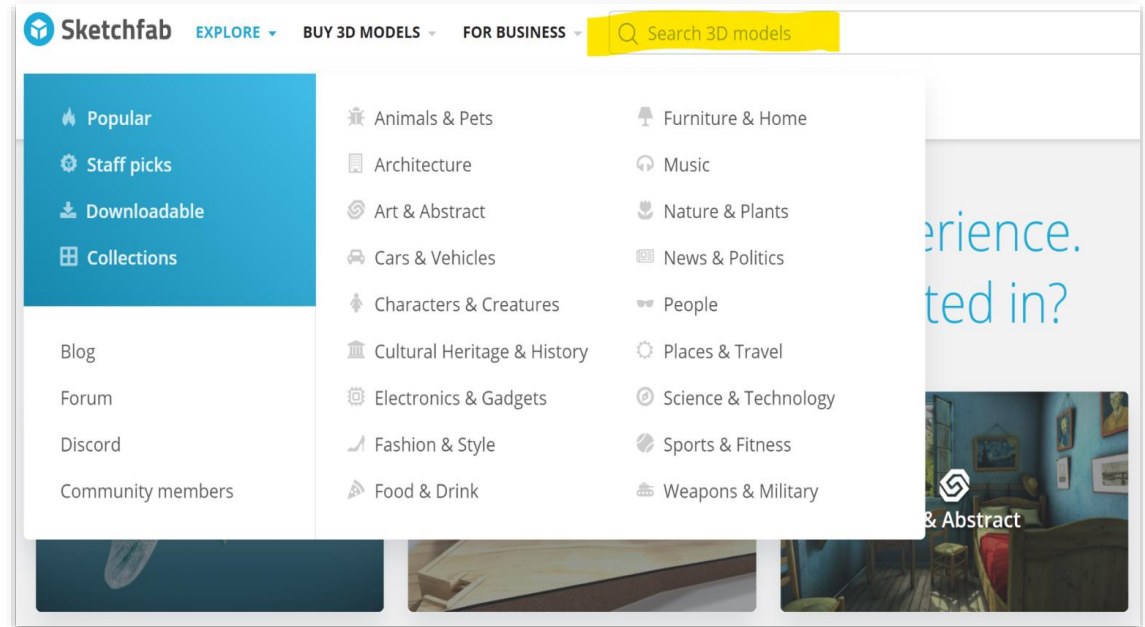




Open up [Sketchfab.com](https://sketchfab.com)  
in your browser and follow  
along!

- Sign up for a free account
- OR**
- Use this temporary  
account:

Email: [suzie.lavallee@gmail.com](mailto:suzie.lavallee@gmail.com)  
Password: **3DworkshopsUBC**



Screenshot of the search feature on Sketchfab



**Type in a search term for something you'd like to see in 3D** *What did you find?*

Post links, ideas, and comments in the chat box

Some of my favourites include:

- Owl zun wine (video)
- 12th C CE Water-Moon Guanyin
- Ruins of a nuns' cell (inside-out model)
- Apothecary vessel for blessed thistle water





## Where else to find 3D models?

***Project website:*** [3dlearning.ubc.ca/resources](http://3dlearning.ubc.ca/resources)

### Animal & natural specimens

- [Natural History Museum](#)
- [UVic Libraries](#)
- [Horniman Museum and Gardens](#)
- [Auckland Museum](#)
- and [more...](#)

### Cultural artifacts

- [British Museum](#)
- [The Smithsonian Institution](#)
- [French national museums](#)
- [Santa Cruz Museum of Art & History](#)
- and [more...](#)



## *Can't find what you want or need for your course?*

It's possible to create new objects via a process called **photogrammetry**, shown here.

UBC Studios may be offering this as a fee-for-service in the future.



Photogrammetry array with lighting and turntable



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# Step 1: Copy the Sketchfab embed code

Find a 3D model in Sketchfab that is useful to your course



WildCo PRO

FOLLOW



26

727

6

Download 3D Model

+ Add To

</> Embed

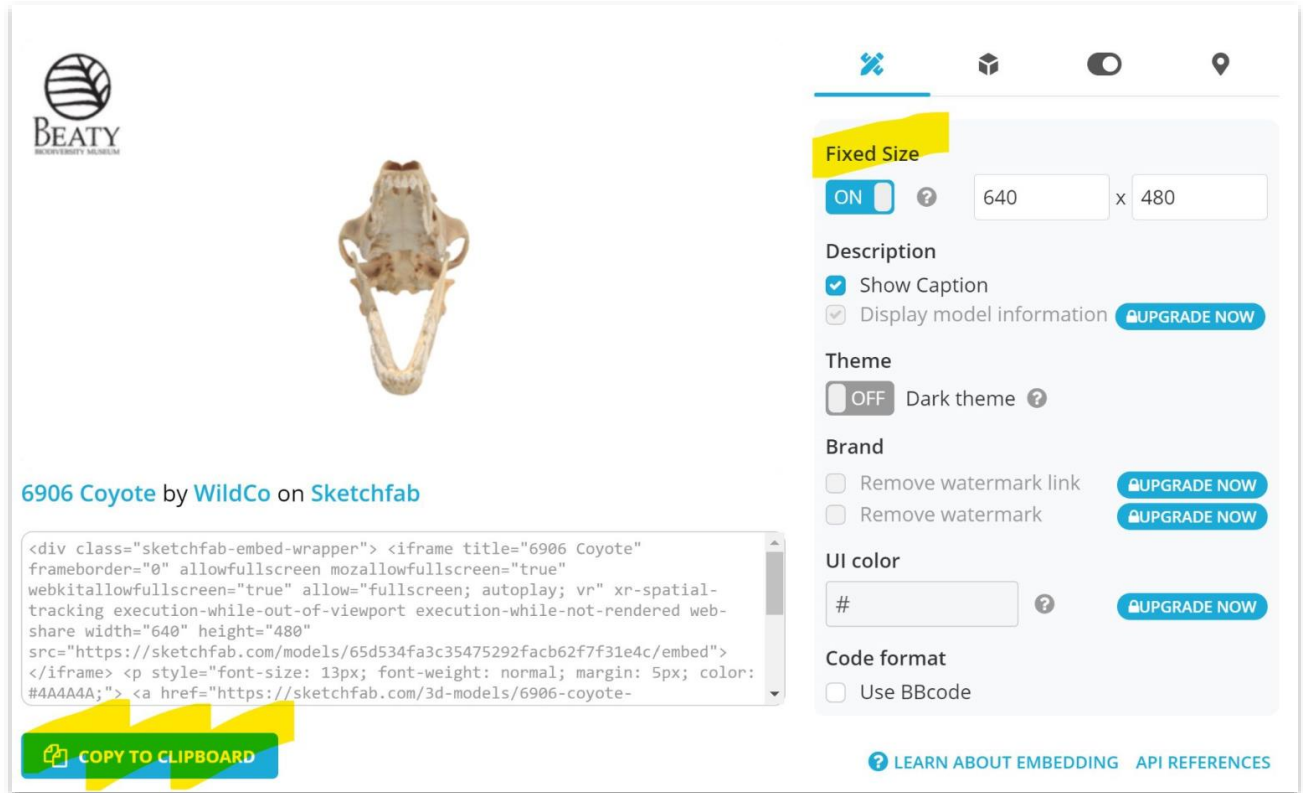
Share

Report

# Step 2: Copy model code and specify size

Copy the code to clipboard

Note: can adjust fixed size at this step



The screenshot displays the Sketchfab interface for a 3D model of a coyote skull. On the left, the BEATY (Beatty University Museum) logo is visible. The model is shown from a dorsal view. Below the model, the title "6906 Coyote by WildCo on Sketchfab" is displayed. A code block contains the following HTML snippet:

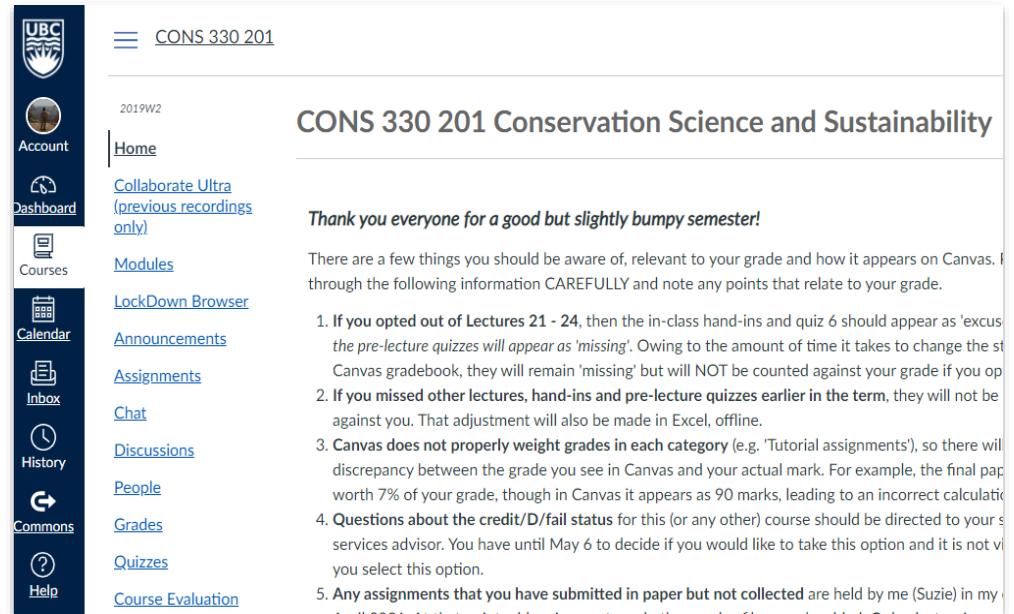
```
<div class="sketchfab-embed-wrapper"> <iframe title="6906 Coyote"
frameborder="0" allowfullscreen mozallowfullscreen="true"
webkitallowfullscreen="true" allow="fullscreen; autoplay; vr" xr-spatial-
tracking execution-while-out-of-viewport execution-while-not-rendered web-
share width="640" height="480"
src="https://sketchfab.com/models/65d534fa3c35475292facb62f7f31e4c/embed">
</iframe> <p style="font-size: 13px; font-weight: normal; margin: 5px; color:
#4A4A4A;"> <a href="https://sketchfab.com/3d-models/6906-coyote-
```

On the right, the "Fixed Size" settings are highlighted in yellow, showing dimensions of 640 x 480. Other settings include "Description" (Show Caption and Display model information), "Theme" (Dark theme), "Brand" (Remove watermark link and Remove watermark), "UI color" (hex code #), and "Code format" (Use BBcode). A "COPY TO CLIPBOARD" button is located at the bottom left of the code block, and a "LEARN ABOUT EMBEDDING API REFERENCES" link is at the bottom right.

# Step 3: “Edit” Canvas page - “Insert” - “Embed”

Open your Canvas course page  
in your web browser

Click on 'Edit' for a page that you  
want to insert the object into



The screenshot shows the Canvas interface for the course 'CONS 330 201 Conservation Science and Sustainability'. On the left is a dark blue navigation sidebar with icons and labels for Account, Dashboard, Courses, Calendar, Inbox, History, Commons, and Help. The main content area has a header with the course name and a list of navigation links: Home, Collaborate Ultra (previous recordings only), Modules, LockDown Browser, Announcements, Assignments, Chat, Discussions, People, Grades, Quizzes, and Course Evaluation. The main text area contains a message titled 'Thank you everyone for a good but slightly bumpy semester!' followed by a list of five items regarding course policies and grades.

UBC

Account

Dashboard

Courses

Calendar

Inbox

History

Commons

Help

≡ CONS 330 201

2019W2

Home

[Collaborate Ultra \(previous recordings only\)](#)

[Modules](#)

[LockDown Browser](#)

[Announcements](#)

[Assignments](#)

[Chat](#)

[Discussions](#)

[People](#)

[Grades](#)

[Quizzes](#)

[Course Evaluation](#)

## CONS 330 201 Conservation Science and Sustainability

**Thank you everyone for a good but slightly bumpy semester!**

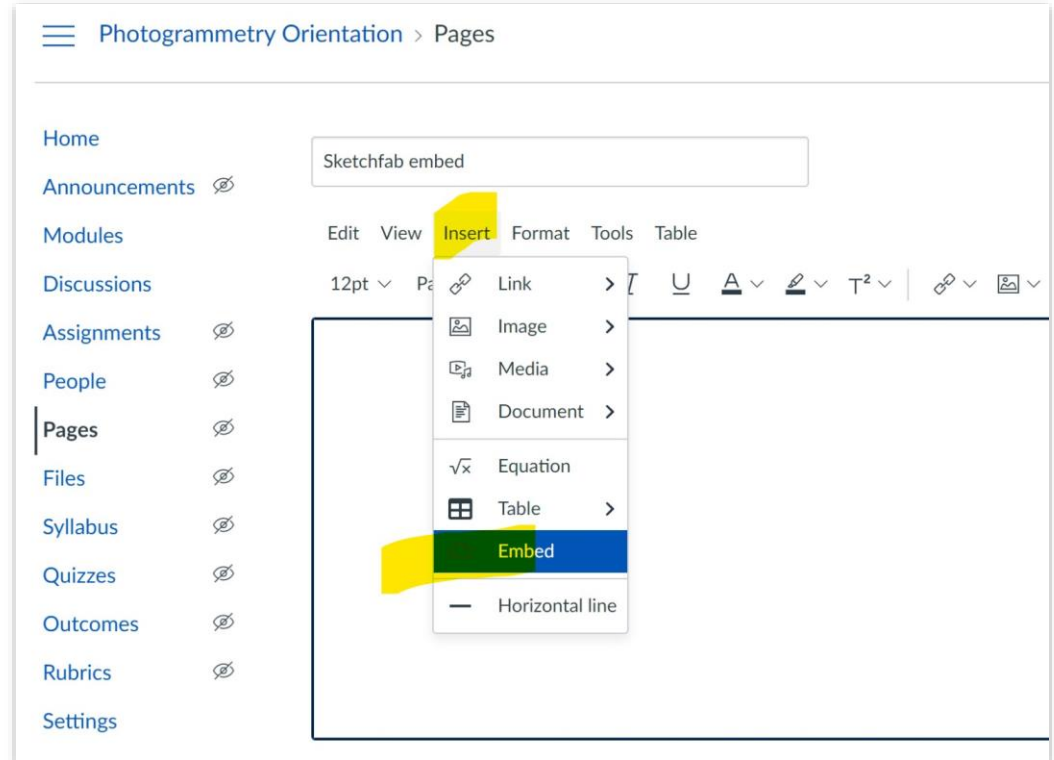
There are a few things you should be aware of, relevant to your grade and how it appears on Canvas. Please read through the following information CAREFULLY and note any points that relate to your grade.

1. If you opted out of Lectures 21 - 24, then the in-class hand-ins and quiz 6 should appear as 'excused'. The pre-lecture quizzes will appear as 'missing'. Owing to the amount of time it takes to change the status in the Canvas gradebook, they will remain 'missing' but will NOT be counted against your grade if you opt out.
2. If you missed other lectures, hand-ins and pre-lecture quizzes earlier in the term, they will not be counted against you. That adjustment will also be made in Excel, offline.
3. Canvas does not properly weight grades in each category (e.g. 'Tutorial assignments'), so there will be a discrepancy between the grade you see in Canvas and your actual mark. For example, the final paper is worth 7% of your grade, though in Canvas it appears as 90 marks, leading to an incorrect calculation.
4. Questions about the credit/D/fail status for this (or any other) course should be directed to your services advisor. You have until May 6 to decide if you would like to take this option and it is not available after that date. You select this option.
5. Any assignments that you have submitted in paper but not collected are held by me (Suzie) in my office.

# Step 3: “Edit” Canvas page - “Insert” - “Embed”

In the editing page,  
**select** the “Insert” menu  
and then select “Embed”

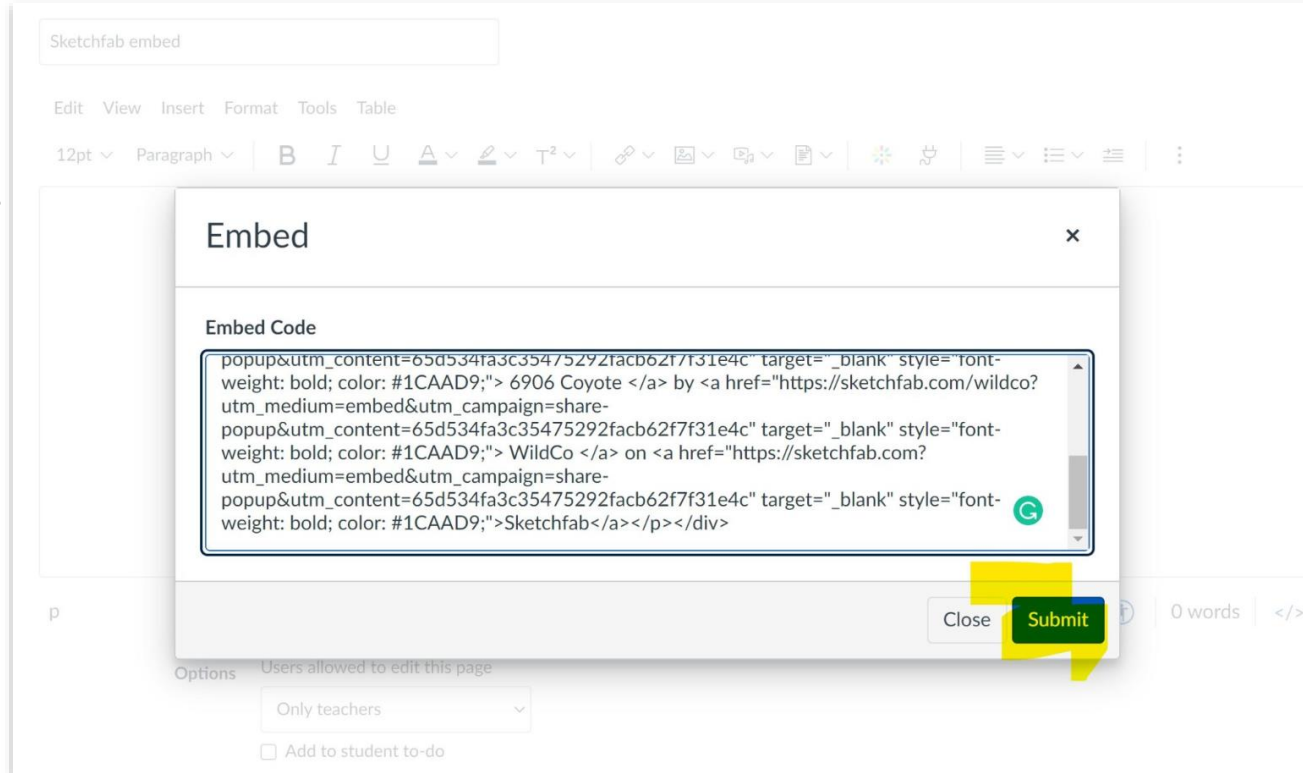
This will open a new  
window



# Step 4: Paste code - "Submit"

**Paste** the object code from Sketchfab into the 'Embed Code' window

Click 'Submit'



The screenshot shows a document editor interface. At the top, there is a search bar containing "Sketchfab embed". Below it is a menu bar with "Edit", "View", "Insert", "Format", "Tools", and "Table". A toolbar with various icons is visible. The main content area shows a paragraph of text. A modal window titled "Embed" is open, displaying the "Embed Code" section. The code block contains the following HTML: 

```
popup&utm_content=65d534fa3c35475292facb62f7f31e4c" target="_blank" style="font-weight: bold; color: #1CAAD9;"> 6906 Coyote </a> by <a href="https://sketchfab.com/wildco?utm_medium=embed&utm_campaign=share-popup&utm_content=65d534fa3c35475292facb62f7f31e4c" target="_blank" style="font-weight: bold; color: #1CAAD9;"> WildCo </a> on <a href="https://sketchfab.com?utm_medium=embed&utm_campaign=share-popup&utm_content=65d534fa3c35475292facb62f7f31e4c" target="_blank" style="font-weight: bold; color: #1CAAD9;">Sketchfab</a></p></div>
```

 A green "Submit" button is highlighted with a yellow callout box. At the bottom of the editor, there are "Options" for "Users allowed to edit this page" (set to "Only teachers") and a checkbox for "Add to student to-do".



Account



Dashboard



Courses



Calendar



Inbox



History



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## Sketchfab embed



6906 Coyote  
by WildCo



[6906 Coyote](#) by [WildCo](#) on [Sketchfab](#)



*Your embedded object should now be visible in your Canvas page!*



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6. Use cases: Faculty of Arts
7. Looking forward

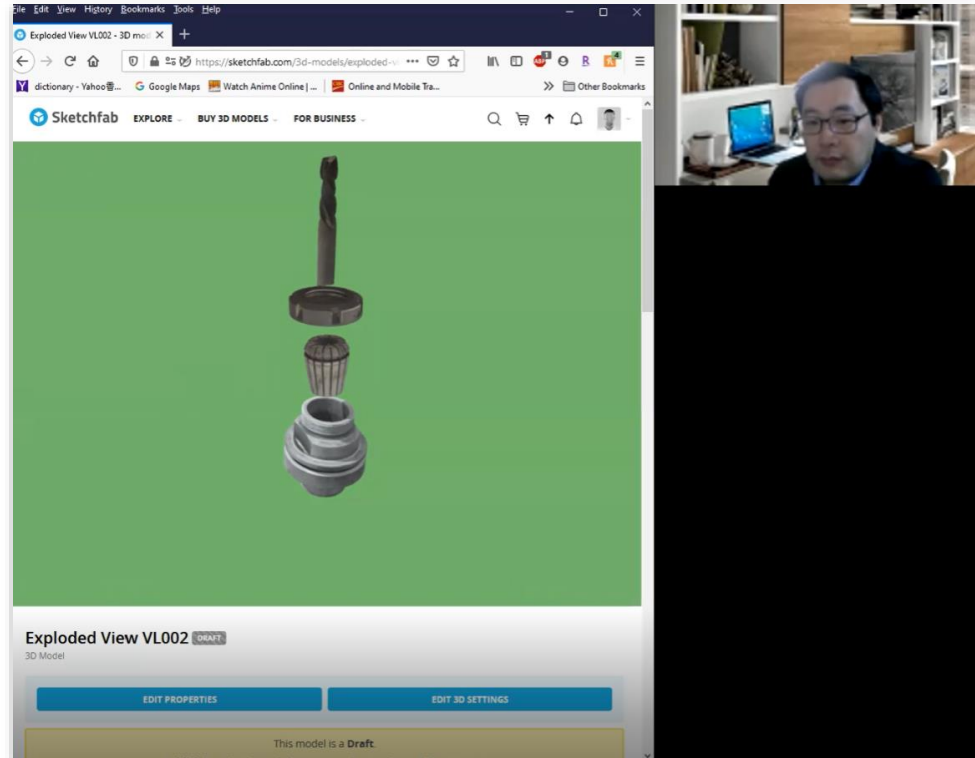




## Best practices:

**Provide orientation** to object manipulation and learning objectives e.g. **Double click** on object to change the centroid or **scroll** to zoom in on a part of the object

**Tip:**  
*Don't use 3D objects in timed quizzes (can be slow to load)*





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Use annotated 3D models to

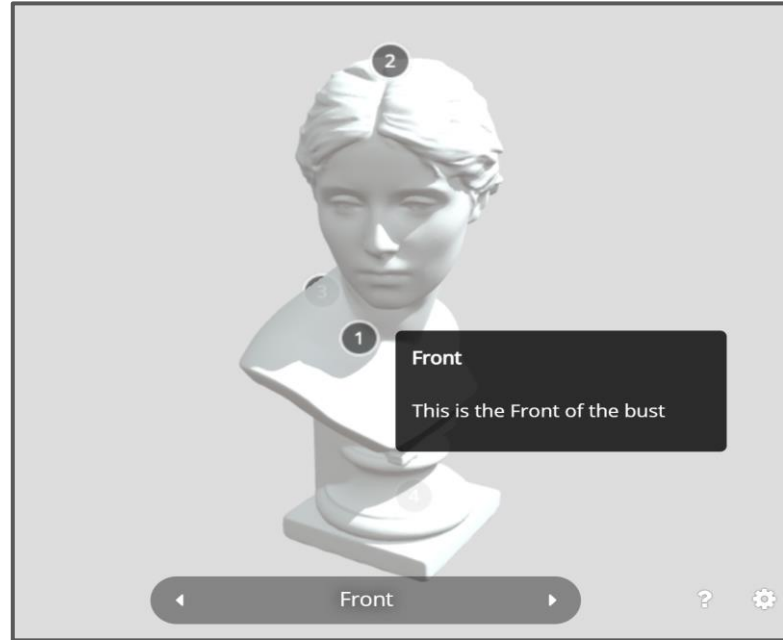
- To enhance asynchronous learning
- To create assignments

***NOTE: In order to download, upload, and annotate models, you will need a Sketchfab account (free!)***

Can use this temporary account

Email: **suzie.lavallee@gmail.com**

Password: **3DworkshopsUBC**



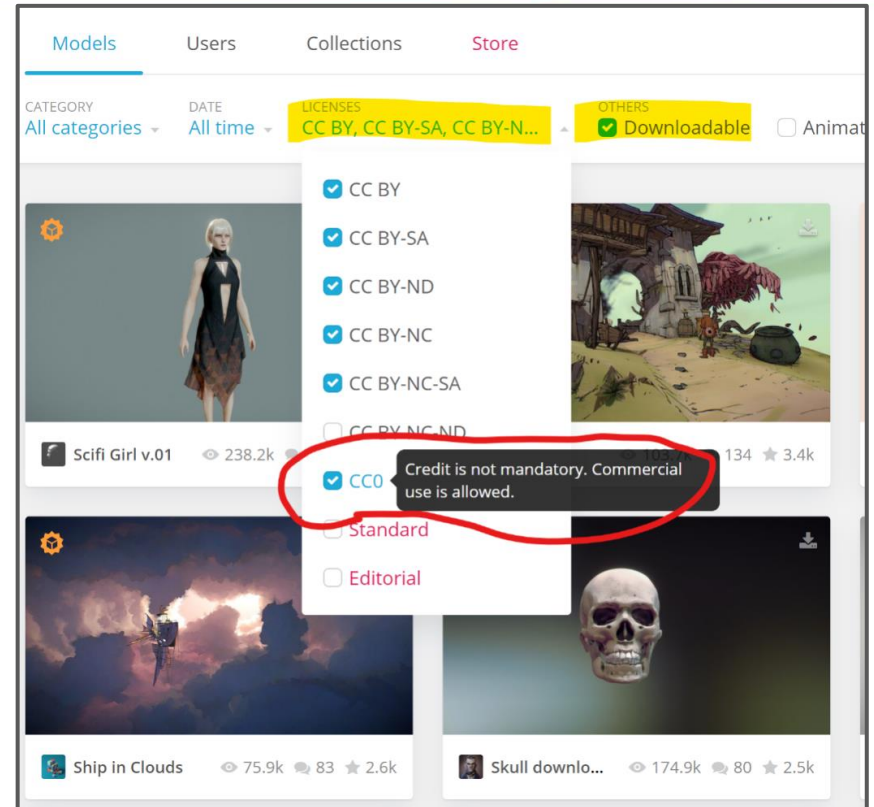
'Bust of Roza Loewenfeld'



Looking for material that you can modify or your students can be given as an 'assignment'?

**Tips:**

- Use the Licenses search on main page in Sketchfab to find **CC0 content** (no credit mandatory, commercial use allowed)
- Check the box beside 'Downloadable' to ensure you can copy to your account



# Step 1: Copy and upload a 3D model to your account

**Sign in** to a Sketchfab account or use a temporary account:

Username: **TLEFworkshops**  
Email: [suzie.lavallee@gmail.com](mailto:suzie.lavallee@gmail.com)  
Password: **3DworkshopsUBC**

**Download** a copy of **free, CC0 model** of your choice to your computer

**Upload** the zip file to your account

Sketchfab EXPLORE BUY 3D MODELS FOR BUSINESS

SEARCH SHOPPING CART NOTIFICATION UPLOAD

Upload a new model

Drag & Drop or browse

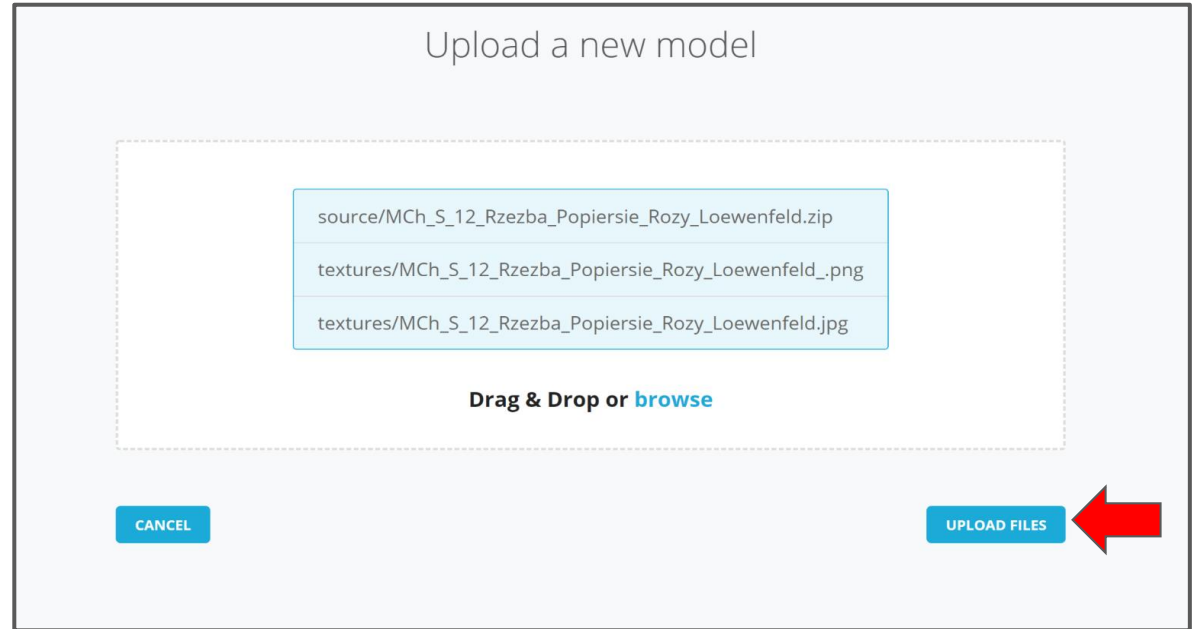
We support FBX, OBJ, DAE, BLEND, STL, and many others.  
You can also upload an archive like ZIP, RAR, or 7z, containing your textures, materials, and mesh.  
If you aren't sure, follow our guide or try our exporters to upload directly from your favorite software.

CANCEL

sculpture-bust-of-roza-loewenfeld Upload the .zip file

# Step 1: Copy and upload a 3D model to your account

**Note:** there will be three files that you must upload (all in the 'zip' file packet)



# Step 2: Edit your model information

Before you can add annotations, you must edit the model information

a) **Select settings** for your model (highlighted in yellow)

b) **Describe** your model (highlighted in green)

The screenshot shows the 'Edit model' interface. The title is 'Apollo'. The description field is empty. The 'Who can see?' dropdown is set to 'PUBLIC'. The 'Allow texture inspection' toggle is 'ON'. The 'Age-restricted content' toggle is 'OFF'. A yellow box indicates '30 upload credits left'. The 'SAVE' and 'SAVE & PUBLISH' buttons are at the bottom right.

# Step 2a: Model settings

Under “Who can see?” you can still embed “Private” model in your Canvas course.

Under “Download”, select 'Free'  
(If you choose “No”, you will use up a Sketchfab credit!)

Who can see?

Anyone on Sketchfab.com PUBLIC ▲

Anyone on Sketchfab.com PUBLIC

Anyone with the link PRIVATE

Anyone with the link & password PASSWORD

Download

No Free Store

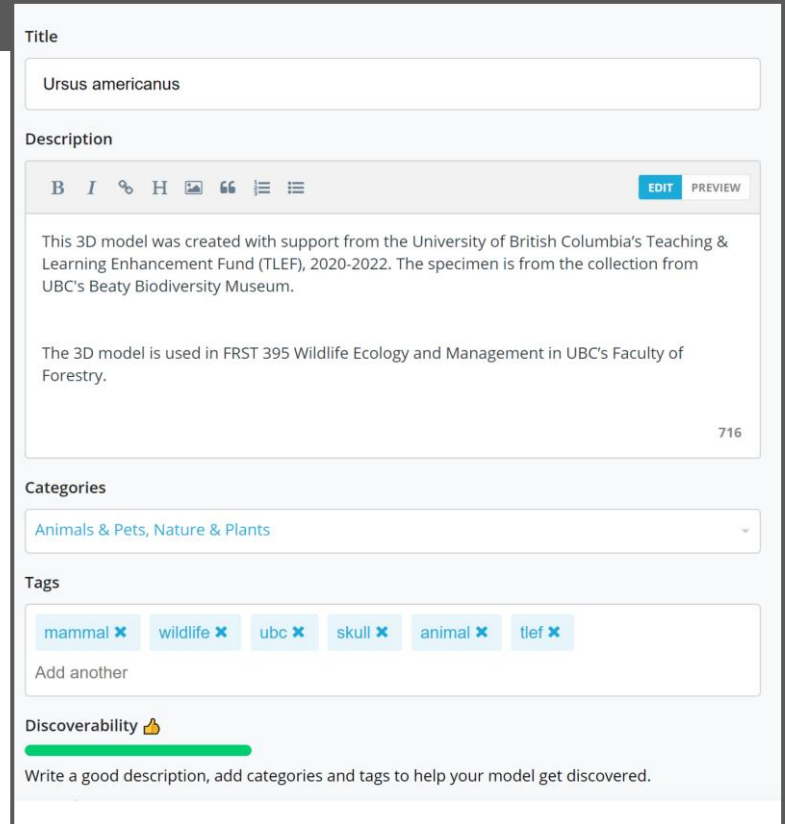
License CC Attribution  
Change license

# Step 2b: Enter model description

To increase the *discoverability* of your 3D model,

1. Provide specific title
2. Give longer description with source, course information, date, etc.
3. Assign pre-set categories (up to 2)
4. Enter tags that apply to your model

**Tip:** You can create a searchable 'collection' by using unique tag (e.g. TLEF)








The screenshot shows a form for entering model metadata. The 'Title' field contains 'Ursus americanus'. The 'Description' field has a rich text editor with two paragraphs: 'This 3D model was created with support from the University of British Columbia's Teaching & Learning Enhancement Fund (TLEF), 2020-2022. The specimen is from the collection from UBC's Beaty Biodiversity Museum.' and 'The 3D model is used in FRST 395 Wildlife Ecology and Management in UBC's Faculty of Forestry.' Below the description is a 'Categories' dropdown menu set to 'Animals & Pets, Nature & Plants'. The 'Tags' section shows six tags: 'mammal', 'wildlife', 'ubc', 'skull', 'animal', and 'tief'. At the bottom, there is a 'Discoverability' section with a green progress bar and the text 'Write a good description, add categories and tags to help your model get discovered.'

Title

Ursus americanus

Description

**B I**  **H**     [EDIT](#) [PREVIEW](#)

This 3D model was created with support from the University of British Columbia's Teaching & Learning Enhancement Fund (TLEF), 2020-2022. The specimen is from the collection from UBC's Beaty Biodiversity Museum.

The 3D model is used in FRST 395 Wildlife Ecology and Management in UBC's Faculty of Forestry.

716


Categories


Animals & Pets, Nature & Plants

Tags

mammal × wildlife × ubc × skull × animal × tief ×

Add another

Discoverability 



Write a good description, add categories and tags to help your model get discovered.

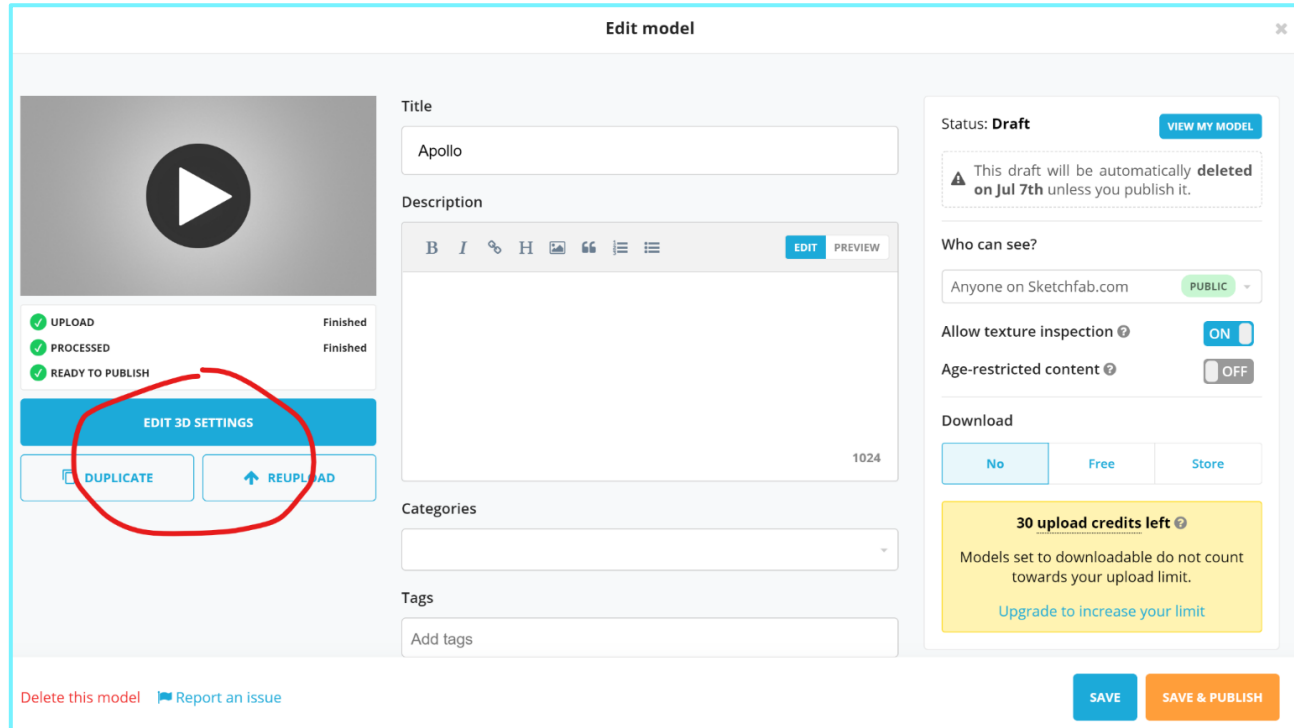
## Step 2b: Enter model description

***“This work is based on **Model 2** by **Sketchfab** licensed under **CC BY 4.0**.”***

*If you use a model from Sketchfab that is not under CC0, credit the original owner using this format!*

# Step 3: Edit “3D settings” properties

Once you have set your model descriptions and settings, select '**Edit 3D Settings**' to enter the object editor



The screenshot shows the 'Edit model' interface. On the left, there is a video player with a play button. Below it, a progress bar shows 'UPLOAD' (Finished), 'PROCESSED' (Finished), and 'READY TO PUBLISH'. A red circle highlights the 'EDIT 3D SETTINGS' button. Below this are 'DUPLICATE' and 'REUPLOAD' buttons. The main area contains a 'Title' field with 'Apollo', a 'Description' field with a rich text editor, and a 'Categories' dropdown. On the right, there is a 'Status: Draft' section with a 'VIEW MY MODEL' button and a warning: 'This draft will be automatically deleted on Jul 7th unless you publish it.' Below that, 'Who can see?' is set to 'PUBLIC'. 'Allow texture inspection' is 'ON' and 'Age-restricted content' is 'OFF'. The 'Download' section shows 'No', 'Free', and 'Store' options. A yellow box indicates '30 upload credits left' and 'Upgrade to increase your limit'. At the bottom right, there are 'SAVE' and 'SAVE & PUBLISH' buttons. At the bottom left, there are links for 'Delete this model' and 'Report an issue'.

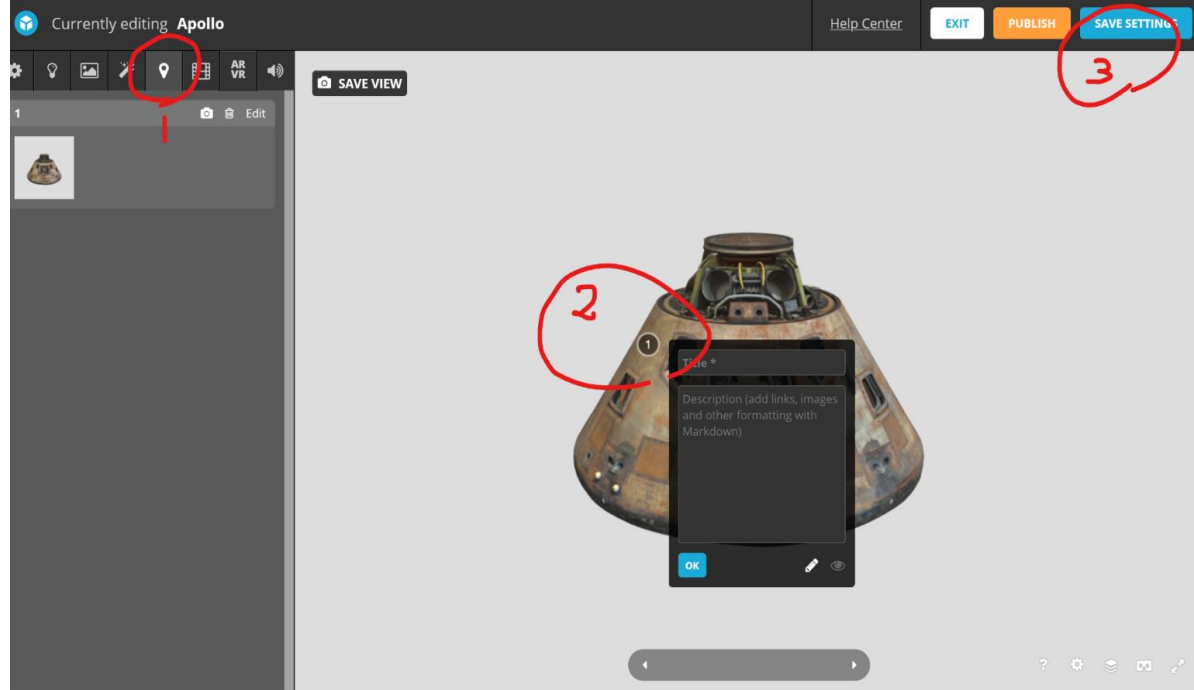
# Step 4: Add annotations

To add annotations to your model:

1. Click on annotation tab
2. Click on model add an annotation
3. Save settings

**Tip:**

*Annotations can have title and text entry only, but can link to other materials (e.g. microscopic photo, video)*





## Workshop Overview

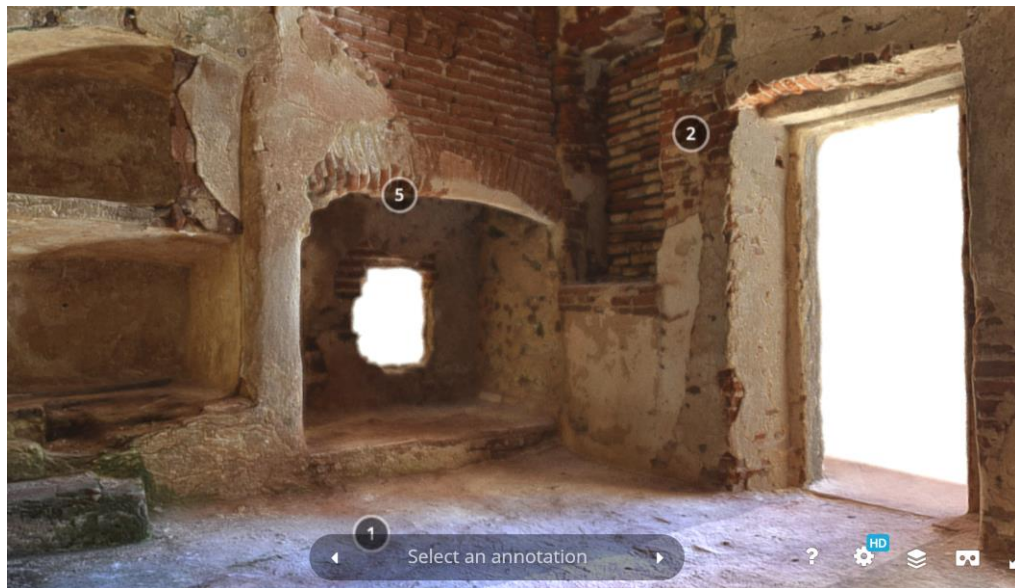
1. Why use 3D objects?
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6. **Use cases: Faculty of Arts**
7. Looking forward





## Archaeology

*Learning about the dimensional spaces of ancient cultures – what can we tell from the physical arrangement of living spaces?*



*Nuns' cell – with annotations*



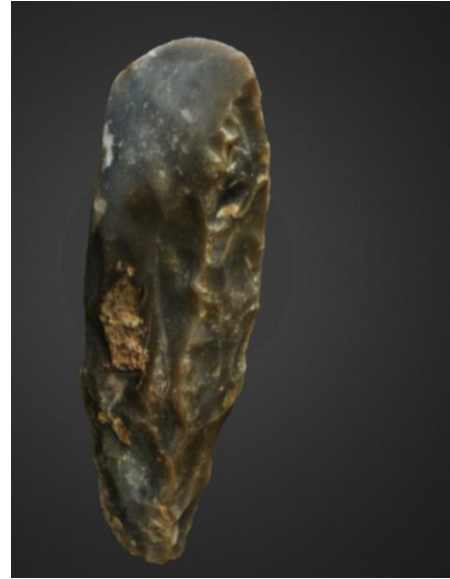
## Anthropology – Materials culture

*How would these tools have been made?*

*How would these tools have been used?*

*Where is the hand placement on tool?*

*Where is 'active edge' and wear?*



Flint axe



Biface Cordiforme Allonge



## Cultural immersion

*Language courses often have some sort of cultural appreciation elements (e.g. food, architecture, etc)*



Church of the Gesù, Rome



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5. Create learning activities using Sketchfab
6. Lessons learned
7. **Looking forward**





## Looking forward - '**Rotatable**' macro photography

Using a macro lens and a series of photos, we can create a 360 degree rotatable photo of very small objects – *better than most dissecting microscopes!*



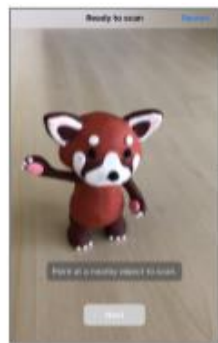
*Dendroctonus pseudotsugae*  
~5 mm long



## Looking forward - *Photogrammetry apps (iOS)*

New app by Apple (2021) has enabled anyone with a dual-camera phone to create a (rough) 3D model

### Scan Real-World Objects with an iOS App



Prepare to scan



Define bounding box



Scan



Adjust origin



Test and Export



## Looking forward - *Volumetric 3D capture* – *Video in 3D*

Currently, online models show very pixelated, rough capture videos

[e.g. Volumetric Kickflip - 3D model by soonho kwon \(@soonhokwon\) \[bb1b9e0\] \(sketchfab.com\)](#)

### ***We can do better!***

Implications for kinesiology, opera, language learning, many other areas of learning at UBC



Nancy Hermiston – UBC  
School of Music

*This project received funding from the  
**UBC Teaching and Learning Enhancement Fund***

## TEAM MEMBERS

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Yousra Alfarra  
Jazica Chan  
Sharon Chen  
Michelle Huynh

Hanson Lee  
Emma Ng  
Jinil Patel  
Sam Yousefifard

Vera (Tianyi) Bao  
Joon Jang  
Ysabel Gana  
Sam Peng



THE UNIVERSITY OF BRITISH COLUMBIA

Website: [3dlearning.ubc.ca](http://3dlearning.ubc.ca)

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