

BIRDEE Unit 1 Lesson Plans

1.5.3. Ideate: Learn about the Morpho Matrix

Students will be introduced to the Morphological Matrix ideation tool. The class will go through a Morphological Matrix example together (headphones and earphones).

View: [1.5.3. Let's Learn about the Morphological Matrix](#)

Teacher Note: Guided powerpoint for the day. Teacher Directions for each slide can be found in the speaker notes.

Engage: 5 min

Teacher Note: Teacher will have Slide 2 of the ppt up on the board as students come into class. Have a short **Class Discussion:**

- What are some similarities and differences in the structures of headphones/earphones?

Explore: 20 min (Individual worksheets but work in Groups, Class Discussion)

Morphological Matrix Headphones (Slides 3-7)

We are going to explore how different sets of headphones use different structures to accomplish the same function.

Teacher Notes:

- Teachers will lead a **Class Discussion** about the functions of headphones and earphones.
- Students will list different structures different headphones use to accomplish each function in [1.5.3. Morphological Matrix Ideation–Headphones and Earphones](#).
- Teachers lead a **Class Discussion** about the different structures different headphones use to accomplish each function and allow students to fill in the morphological matrix on the board.

Explain: 15 min (Class Discussion)

Morphological Matrix Ideation Tool (Slides 8-13)

The Morpho Matrix is an ideation tool.

- **Teacher Note:** Class will work together to analyze existing headphones and figure out which structures were combined from the morpho matrix created in the 1.5.3. worksheet to create a specific headphone.

Evaluate: 10 min (Individual and Class Discussion)

Sketching headphone example (Slides 14-16)

You have to be careful with combining ideas from a Morphological Matrix because sometimes ideas may not go together.

Student Handouts:

[1.5.3. Morphological Matrix Ideation–Headphones and Earphones](#)

Student Materials:

N/A

Instructional PPT's & Materials:

[1.5.3. Let's Learn about the Morphological Matrix](#)

Teacher Resources:

[1.5.3. Morpho Matrix Ideation Headphones TEACHER KEY](#)

Web Resources:

N/A

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- Practice combining structures by sketching a set of example headphones based on what structures are circled in the morpho matrix.
- **Class Discussion:**
 - What do your headphones look like?
 - Do your headphones look strange?
 - Would you buy these headphones?

You have to be careful when randomly selecting structures from a morpho matrix and putting them into a solution because it may not produce a viable solution that fulfills all your requirements. Just because your solution has all the functions it needs does not mean it fulfills all of your requirements.