



Model Exploration in zSpace Studio

zSpace Studio Sandbox Launch Code: [AP21](#)

Learning Objective:

Explore internal structures of the head and neck.

Model Name:

Head and Neck (Simple)

Quick Launch Code: M2112

Optional: Head and Neck (Complex)

Quick Launch Code: M0001

Lesson Description:

Separate structures of the head and neck into body systems.

Examine the interrelationships between the body systems.

Questions & Answers

Introduction:

Review the different body systems: circulatory, digestive, endocrine, exocrine, muscular, nervous, respiratory, and skeletal.

Directions:

Launch the Head and Neck (Simple) model in zSpace Studio. Dissect the model and sort the structures into the different body systems.

Answer questions 1 and 2 to the right.

Reassemble the model.

Use the cutting plane to look at the interrelationship between the different body systems in the head and neck.

Answer questions 3, 4, and 5 to the right.

Optional: Use the Head and Neck (Complex) model to practice identifying structures and systems without labels.

Answer the following questions.

1. Which body system has the most dissectible parts?
2. Which body system has the least dissectible parts?
3. How do the muscular and skeletal systems relate to each other in the head and neck?
4. How do the digestive and respiratory systems relate to each other in the head and neck?
5. How do the respiratory and circulatory systems relate to each other in the head and neck?

More time to explore!

Choose a new model.

- Delete your model if desired.
- Open the Backpack or enter M on the keyboard to open the Model Gallery.
- Enter a keyword in the search bar to find a model.
- Alternatively, select a category to the left to see a collection of models.

Drag your model into the scene..



Model Exploration in zSpace Studio

zSpace Studio Sandbox Launch Code: [AP21](#)

Learning Objective:

Understand the characteristics of insects.

Model Name:

Numerous models available under the category "Insects"

Lesson Description:

Explore models of insects. Identify defining characteristics. Create a new insect.

Questions & Answers

Introduction:

Review the five defining characteristics of insects - exoskeleton (shell), three main body parts (head, thorax, abdomen), antennae, six legs, and two pairs of wings.

Directions:

Open Sandbox (**AP21**).

Open Model Gallery (**shortcut = M**).

Select the category "Insects" and the category "Dissectible".

Bring in 5 models of different insects.

Answer the following questions.

1. Which insects did you choose? Why?
2. Identify the exoskeleton on one insect model. Add a note identifying this part.
3. Identify the head, thorax, and abdomen on a different insect. Add notes identifying these parts.
4. Identify the antennae on a different insect. Add a note identifying this part.
5. Identify the six legs on a different insect. Add notes identifying these.
6. Identify the two pairs of wings on a different insect. Add notes identifying these.
7. Create a new insect by dissecting out the labelled parts from the different insects and recombining them.
8. Sketch and name your new insect.

More time to explore!

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Drag your model into the scene..



Model Exploration in zSpace Studio

zSpace Studio Sandbox Launch Code: [AP21](#)

Learning Objective:

Compare and contrast the different crystalline allotropic forms of carbon and identify the effect of the structure on their properties. **Lesson credit:** Dr. Navdeep Rajput, San Carlos High School, Arizona

Model Name:

Fullerene
Diamond
Graphite

Lesson Description:

Explore different models of carbon. Identify structural differences between different forms. Discuss the impact of structure on function. Predict the state of hybridization based on structure.

Questions & Answers

Introduction:

Review the meaning of crystalline, amorphous, and allotropic forms; the state of hybridization of carbon; and the relationship between structure and properties.

Directions:

Open Sandbox (**AP21**).
Open Model Gallery (**shortcut = M**).
Enter "Carbon" in the search bar.
Bring models into the scene.

Answer the following questions.

1. How many crystalline forms of carbon can you find?
2. Name them.
3. Compare and contrast the structural differences between the crystalline allotropic forms of carbon.
4. Do these structural differences affect their properties?
5. Predict the state of hybridization of each carbon in the allotropic forms based on the number of bonds around carbon.
6. Give some examples of amorphous forms of carbon.

More time to explore!

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- Alternatively, select a category to the left to see a collection of models.

Drag your model into the scene..