

### Step-by-Step Instructions

1. In preparation for lesson, identify concepts and vocabulary to be learned by students including cell, cell membrane, chloroplast, chromosome, cytoplasm, endoplasmic reticulum, mitochondria, lysosomes, nucleus, organelle, ribosome, transport vesicles, and vacuole.
2. Note below three words to be taught and how their definitions build upon each other. Accordingly, teach them in the order cited below.

### Examples of Mnemonic Keywords for Lesson on Cell Structures and Functions

**First word to be taught: *Cell***

#### Step-by-Step Instructions

1. Display the word 'cell' on a whiteboard or via an overhead projector or computer display.
2. Ask the students if they can tell what a 'cell' is.
3. Introduce picture of small room as in a prison or convent, such as shown below.



4. Discuss with students the picture and what it displays.
5. Create and record on an overhead projector what the definition of 'cell' is near the word: "microscopic structural unit of all organisms."
6. Have students create index cards with the word and its definition on one side and with the picture of it on the other. Direct students to use glue sticks to attach pictures to cards. Please note you may want to provide the definitions already typed to the students if a student's fine motor skills significantly impact her or his ability to write. Then the student can glue the definitions rather than write them out on the index card.
7. Encourage and set aside time for students to review index cards until they know them.
8. Guide students to associate this picture with the word 'cell' and its meaning.
9. Fade out students' use of index cards once the students demonstrate they learned that word.

**Second word to be taught: *Organelle*****Step-by-Step Instructions**

1. Display the word 'organelle' on a whiteboard or via an overhead projector or computer display.
2. Ask the students if they can tell what an 'organelle' is.
3. Alongside the picture of small room as in a prison or convent, introduce a picture of an organ such as shown below.



4. Discuss with students the pictures and what they display.
5. Create and record on an overhead projector what the definition of 'organelle' is near the word: "cell organ."
6. Have students create index cards with the word and its definition on one side and with the picture of it on the other. Direct students to use glue sticks to attach pictures to cards. Please note you may want to provide the definitions already typed to the students if a student's fine motor skills significantly impact her or his ability to write. Then the student can glue the definitions rather than write them out on the index card.
7. Encourage and set aside time for students to review index cards until they know them.
8. Guide students to associate these pictures with the word 'organelle' and its meaning,
9. Fade out students' use of index cards once the students demonstrate they have learned that word.

**Third word to be taught: *Ribosomes*****Step-by-Step Instructions**

1. Display the word 'ribosome' on a whiteboard or via an overhead projector or computer display.
2. Ask the students if they can tell what a 'ribosome' is.
3. Alongside the picture of small room as in a prison or convent and a picture of an organ, introduce a picture of a small mitten such as shown below.



4. Discuss with students the pictures and what they display.
5. Create and record on an overhead projector what the definition of 'ribosome' is near the word: "small, mitten-shaped organelle where protein is manufactured."
6. Have students create index cards with the word and its definition on one side and with the picture of it on the other. Direct students to use glue sticks to attach pictures to cards. Please note you may want to provide the definitions already typed to the students if a student's fine motor skills significantly impact her or his ability to write. Then the student can glue or tape the definitions rather than write them out on the index card.
7. Encourage and set aside time for students to review index cards until they know them.
8. Guide students to associate these pictures with the word 'ribosome' and its meaning,
9. Fade out students' use of index cards once the students demonstrate they have learned that word.

### **Accommodations and Modifications that May be Provided for Activity**

1. The teacher will group student with special needs with a regular education student to encourage a peer-assisted learning environment.
  2. Teacher can modify the activity by providing both the pictures and the definitions already typed so that if a student's fine motor skills significantly impact her or his ability to write. Then the student can glue or tape the definitions rather than write them out on the index card.
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### **Sites from which Pictures were Retrieved**

Picture of lion in cell retrieved September 14, 2010, from  
[http://bellylorna.blogspot.com/2007\\_11\\_01\\_archive.html](http://bellylorna.blogspot.com/2007_11_01_archive.html)

Picture of organ retrieved September 14, 2010, from  
[http://www.stgabrielparish.ca/Images/New\\_Church/organ.jpg](http://www.stgabrielparish.ca/Images/New_Church/organ.jpg)

Picture of mitten retrieved September 14, 2010, from  
[http://www.sewingpatterns365.com/uploaded\\_images/mitten-sewing-patterns-745768.jpg](http://www.sewingpatterns365.com/uploaded_images/mitten-sewing-patterns-745768.jpg)