



# Science Sauce Online

*A source for free flipped learning lessons*

Flipped learning reverses the traditional classroom process of “learn it in school, practice at home”. Flipped learning involves students learning new content at home through a video, reading, listening or other activity. They then come to class with the foundation knowledge, ready to really engage with the topic. This is a flipped learning lesson with self-study materials and suggested class activities.

Resources for this lesson, including the student tasks, can be found at:

**ScienceSauceOnline.com**

Enter lesson code:

**01700**

**Lesson Topic:**

## **KIDNEYS AND THE NEPHRON**

**Age:** 14-16

**Self study input method:** Video

**Self study task:** Question sheet

**Classwork prep time:** Near zero

### **STUDENT PRE-CLASS TASK**

- Watch the video: “Kidneys and the Nephron”.
- Answer the questions on the student homework task sheet.

## IN-CLASS TASKS

**WHOLE CLASS ROLE-PLAY:** Work as a large group to role-play the function of the nephron. Students should have creative freedom to present it as they want, though they will likely choose individual students to represent different molecules (e.g. proteins, glucose etc.), and find a way to represent the structure of the tubule, possible as a line of students holding hands, or possibly by using props such as desks/chairs in a line.

Time (mins)	Students...	Teacher...
2	In groups of about 4 or 5, review answers to the homework task.	Monitors.
3	Review answers (and make corrections if necessary).	Gives answers to the student task sheet.
5	Listen to instructions. Read the criteria.	Gives instructions for the role-play.
5	In pairs, brainstorm how to complete the role-play.	Monitors and offers suggestions where necessary. Assigns each pair a label: A, B, C etc.
5	In groups of 4, share their ideas with another pair.	Monitors and offers suggestions where necessary.
10	As a class, create and rehearse the class role-play, following instructions of the "lead pair".	Assigns a pair ("pair A" for example) to be the team leaders to organize the group for the role-play.
2	Perform the role-play.	Monitors and offers feedback.
3	Return to original pairs and discuss the strengths and weaknesses of the role-play.	Monitors.
10	As a class, improve on the original role-play.	Assigns a new pair to be team leads.
2	Perform the modified role-play	Monitors and offers feedback.
10	<b>Plenary:</b> In their original pairs, discuss how well a group of younger students would understand the role-play, and make suggestions as to simplifications that could be made.	Asks the students, "If a Year 7 [grade 6] group saw your role-play, how much of it would they understand? What could you do to make it more simple for them without removing important facts?"

## ANSWERS TO STUDENT TASK

Answers to the student task sheet will be relatively obvious for subject teachers, and can all be found by reviewing the student self-study resources.

Answers are not published here, as these sheets are easily accessible by students. If you need clarification on any of the questions please feel free to email me and I'll get back to you ASAP.

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