



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:

01400

Lesson Topic: **FOOD TESTS**

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: “Food test: Iodine, Biuret, Benedict’s, Ethanol, DCPIP”.
- Answer the questions on the student homework task sheet.

IN-CLASS TASKS

PRACTICAL: Test for the presence of biological molecules in a range of food products. **See practical sheet.**

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	Read the practical sheet and make predictions.	Gives out task sheet.
30-40	Work in groups of 4 or less and complete the practical at each station. Groups move from station to station in a rotation, completing the handout as they go. (Students should clean up at each station before progressing to the next one to ensure the cleanup at the end of the lesson is manageable).	Monitors and gives guidance where needed.
5	Plenary: List three foods (not tested in this lesson) that would test positive for each of the tests.	Monitors and clarifies where necessary.

PRACTICAL REQUIREMENTS FOR TECHNICIAN

Five “stations” in the lab should be set up as follows:

Station 1

- Food samples: Cooking oil, egg white, mashed* potato, apple juice.
- Iodine solution.
- 5 Boiling tubes and rack.
- Droppers.

(Enough of the above to repeat tests for several groups of students)

Station 2

- Food samples: Cooking oil, egg white, mashed potato, apple juice.
- Biuret solution.
- 5 Boiling tubes and rack.
- Droppers.

(Enough of the above to repeat tests for several groups of students)

Station 3

- Food samples: Cooking oil, egg white, mashed potato, apple juice.
- DCPIP solution.
- 5 Boiling tubes and rack.
- Droppers.

(Enough of the above to repeat tests for several groups of students)

Station 4

- Food samples: Cooking oil, egg white, mashed potato, apple juice.
- Benedict’s reagent solution.
- 5 Boiling tubes and rack.
- Droppers.
- Hot water bath OR large beaker + kettle.

(Enough of the above to repeat tests for several groups of students)

Station 5

- Food samples: Cooking oil, egg white, mashed potato, apple juice.
- Ethanol.
- Distilled water.
- 5 Boiling tubes and rack.
- Small measuring cylinder (10cm³ ideally).

(Enough of the above to repeat tests for several groups of students)

*The potato sample must be liquid. Raw potato should be finely chopped, mixed with distilled water, left to soak, and sieved to remove the solid parts. Starch solution can be used as a more convenient alternative.

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.

contact@sciencesauceonline.com