Resource for Option #3

TEACHER BACKGROUND INFORMATION
FRIED EGG EXPERIMENT

BASIC PRINCIPLE INVOLVED IN COOKING PROTEIN

When eggs are cooked, the protein in them coagulates or clotted and therefore, the egg becomes firmer. If the temperature used is relatively low, the cooked egg is firm and has a desirable tender texture. On the other hand, if the temperature of cooking is high, the coagulation of the protein is carried too far and the eggs become tough, even rubbery. Prolonging the time of cooking eggs, even at low temperatures, tends also to have a toughening effect. For hard fried eggs, cover pan and increase cooking time, but not the temperature. The covering of the pan creates a steam which cooks the top of the egg, eliminating the necessity to flip the egg.

TEACHER INSTRUCTIONS FOR FRIED EGG EXPERIMENT

EQUIPMENT: Small fry pan with tight fitting lid for each group of students.
Small dish and a Spatula

SUPPLIES: 1 teaspoon fat per group
1 egg per group

DIRECTIONS: Carefully break an egg into a small dish. Put 1 teaspoon fat into a frying pan.

METHOD 1: Turn heat to <u>medium low</u> and allow pan to heat
Slip egg carefully into pan
Cook until the white is firm and opaque

METHOD 2: Turn heat to <u>medium low</u> and allow pan to heat
Slip egg carefully into pan
<u>Cover</u> with tight fitting lid and cook until white is firm and opaque

METHOD 3: Turn heat to <u>high</u>
Slip egg into pan
Allow to cook until white is firm and opaque

METHOD 4: Turn heat to <u>high</u>
Slip egg into the pan and <u>cover</u> with tight fitting lid
Cook until the white is firm and opaque

NOTE: It may be wise to demonstrate so the students can judge when the egg is firm and opaque.

CONCLUSION: Eggs are largely a protein food. High temperatures will toughen <u>any</u> protein.

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FRIED EGG EXPERIMENT WORKSHEET

Name _____ Period _____ Assign #

PURPOSE: This experiment is to show the effect of heat on a fried egg. The results will indicate what happens when the protein in the egg is exposed to various temperatures of heat.

DIRECTIONS: After receiving assignment from the teacher, follow directions carefully. Label and display product for the entire class to evaluate. Using the chart below, inspect all egg products and make careful notes. Answer questions below.

METHOD ASSIGNED:

METHOD	Tenderness of white		Appearance of egg		
	Tender	Tough	Crisp	Firm	Soft
METHOD 1 low heat without a lid					
METHOD 2 low heat with a lid					
METHOD 3 high heat without a lid					
METHOD 4 high heat with a lid					

QUESTIONS:

1. Comparing Methods 1 and 3 (without lids), which is the most tender, which is the most tough?

2. Comparing Methods 2 and 4 (with lids), which is the most tender, which is the most tough?

3. Methods 2 and 4 were cooked with tight fitting lids, what effect did the lid have on the eggs?

4. Method 3 and 4 were cooked at HIGH heat, what effect, if any, did this have on the appearance of the egg?

5. Would the term "lacy" be appropriate to describe the outside edges of the eggs? If so, why?

6. Did all of the eggs have to cook for the same amount of time? If not, what made the difference?

7. Describe, completely, the egg that was the most tender.

8. What is it in the egg that toughens and what causes it to become tough. Make a statement about the effects of heat on the protein in the egg.