

# Meet Your Meats: Integrated STEM Lessons

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## Introduction

The purpose of this unit is for participants in 6th-12th grades to gain understanding and knowledge through STEM-related activities about meat science by using a multidisciplinary learning approach. There are five lessons (45 min each) in this unit that integrates standards from the Indiana Department of Education in technology, engineering, mathematics, and science through an experiential learning method. The unit is designed to promote STEM integration through Meat Science

### Where Meat Comes From & Meat Color

**Activities:** Meat Color ID, Mb Coloring, Meat Color Game

**Approaches:** Inquiry-Based, Lecture-Demo, Cookbook

**Integration:** Science



### Water Holding Capacity & Marbling

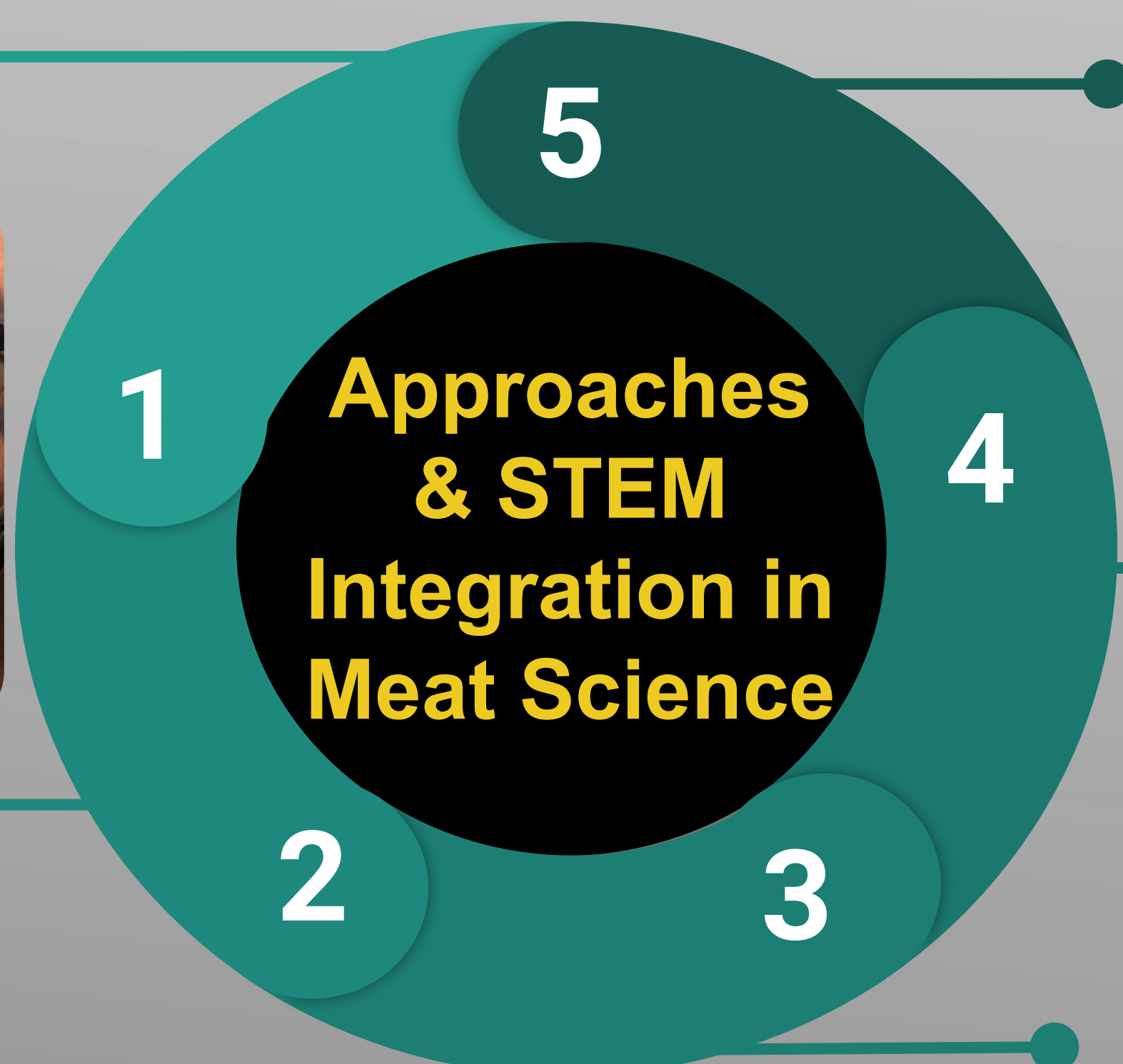
**Activities:** Food & pH, Amount of Marbling, Taste Test

**Approaches:** Inquiry-Based, Lecture, Cookbook

**Integration:** Mathematics, Science



## Timeline



## Overall Unit Learning Objectives

Students will be able to:

1. Interpret meat color in regards to food safety (L1)
2. Identify degrees of marbling and describe the impact marbling has on meat palatability (L2)
3. Classify the parts of the animal where their food comes from (L3)
4. Discuss different marinades (L4)
5. Summarize internal cooking temperatures (L5)
6. **Justify meat related topics by drawing knowledge from all lessons covered in the unit**

### Raw Meat Handling & Safety Cooking

#### Temperatures

**Activities:** Food Safety Scenarios, Internal Temperatures of Meat

**Approaches:** Inquiry-Based, Lecture-Demo, Cookbook

**Integration:** Science, Technology, Mathematics



#### Tenderizations & Marinades

**Activities:** Marinade Case Study

**Approaches:** Inquiry-Based, Lecture, Evidence-Based Reasoning, Problem-Based

**Integration:** Technology, Engineering

#### Overall Cut Selections

**Activities:** Cookout Case Study

**Approaches:** Lecture, Evidence-Based Reasoning

**Integration:** Mathematics



## How it Works

The 5-lesson unit with 45 min for each lesson is intended to be implemented in extension or afterschool programs for students in 6th-12th grade with the goal to expose students to meat science

### Future Plans/Advice to Others

- Implement unit in-person to maximize hands-on experience
- Modify activities if the unit is taught online
- Increase number of student allowed to register per session
- Add incentives to encourage attendance

### Results to Date

For both virtual STEM sessions, there was 5 & 7 participants. Everyone was interactive in the discussion questions and scored well on the Kahoot, which assumes that participants comprehended the material presented to them. Since students were engaged it can be assumed that they enjoyed the various topics of Meat Science presented to them

### Costs/Resources Needed

- Higher cost for in-person teaching
- Taste test dictates majority of the in-person teaching cost, it can vastly vary depending on the types and quantity of meat used
- Complete lists of materials (worksheet, assessments, keys, etc.) needed for the unit can be found by scanning the QR code

