Nasco Education

LESSON PLAN

AFNR/ SEL

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Focus on feed rations

What is it and why is it important for animals?

Volume 28
Middle/High School
Time: Approx. 2 days

Course: Animal Science

Unit: Nutrition

AFNR Standards:

AS.03.01.01.b.
Differentiate between nutritional needs of animals in different growth stages and production systems (e.g., maintenance, gestation, natural, organic, etc.).

AS.03.01.02.b.
Correlate a species' nutritional needs to feedstuffs that could meet those needs.

AS.03.02.01.a.
Compare and contrast common types of feedstuffs and the roles they play in the diets of animals.

AS.03.02.01.b.
Determine the relative nutritional value of feedstuffs by evaluating their general quality and condition.

Common Core Math Standards:

CCSS.MATH.PRACTICE.MP4
Model with mathematics.

CCSS.MATH.PRACTICE.MP6
Attend to precision.

Materials list

- Nasco enzyme analyzer (**SB50722**)
- Calculator (**TB26739**)
- Assorted cereal and candy products
- Pen/Pencil
- Paper

Objective

Student will be able to balance rations using the Pearson Square, SWBAT compare, and contrast nutritional requirements for livestock animals.

Activities

- Balance a ration using the Pearson Square
- Make the feed package
- Collect the feed
- Place your feed in the package
- Answer the follow-up questions

Step 1: Balance the ration on the worksheet using the Pearson Square. Can be done as a warm up or independently.

Step 2: Get a blank piece of paper and make "feed package." The package should include: name, ingredients, feeding directions, percent protein, cautions.

Step 3: Once you have your information, go to the "feed shop" and collect feeds. Complete parts a.–i. on worksheet.

Step 4: Close eyes, reach in, take a handful, and eat part of ration.

Step 5: Answer closing questions on worksheet.

Assessment: Student will hand in feed package and worksheet with balanced ration and questions answered.

Optional instructions using the enzyme analyzer:

Step 1: Obtain a physical feed sample (or a few different kinds) from local farm or analytical lab.

Step 2: Using the Enzyme Analyzer Kit, students will expose three nutrients (carbohydrates, proteins, and lipids) from the feed sample(s) that were brought in/ collected.

Step 3: Compare feed samples to nutrients in which no enzymes are added.

Step 4: Use the chemical tests to determine if the enzymes were/would be effective in digesting the compounds.

SEL Power-Up Reflection

Suggested questions for an SEL-focused discussion after the project.

- How may working with a team of nutritionists influence how we make a ration?
- What parts of this exercise did we enjoy?
- What parts were difficult?

GROUP REFLECTION

1. How could this activity be more real-life?
2. Are the same feedstuffs always used?
3. How may the feedstuffs used differ between species of livestock?

SELF-REFLECTION

1. What part of this activity do I need more practice with?
2. Did I become frustrated and how could I have handled it better?
3. Is this a career I could see myself pursuing?

Edible feed rations lab

Name: _____ Date: _____

1. Balance a ration using the Pearson Square.

a. Feed cheap

1. You are looking for 16% protein
2. Mix a 1,000 lb. batch
3. Your feed options include:

Feed	Crude	Cost
Corn	9%	.32
Barley	12%	.11
Soy Bean Meal	44%	1.02
Cotton Seed Meal	41%	.98
Granular Molasses	5%	.31
Wheat Grain	12%	.57

Feed list:

Corn – Corn puffs
Barley – Shredded Coconut
Soy Bean Meal – Rice Krispies
Cotton Seed Meal – Marshmallows
Granular Molasses – M&Ms
Wheat Grain – Frosted Flakes

Show Pearson Square work here:

Lbs. of feed #1: _____

Lbs. of feed #2: _____

Price per lb. of feed: _____

cont. next page

2. Get a blank piece of paper and make your feed "package."

a. Name your feed.
b. Include on your packaging:
    1. Ingredients
    2. Feeding directions
    3. % protein
    4. Cautions
c. Use color.
d. Fold and staple.

3. Once you have your information, go to the "shop" and collect your feeds.

a. Take your pounds of each feed – divide by 100
b. Put that number here:

    1. Feed One:_____(grams)

    2. Feed Two:_____(grams)

c. Get a cup.
d. Place it on the scale and zero it out.
e. Using the number from Feed One (3.b.1. above) add "feed" to your cup until you reach the right weight.
f. Pour that feed into your Feed Package.
g. Repeat steps e. and f. for Feed Two.
h. Shake your bag.

4. Close your eyes, reach in, take a handful, and eat part of your ration. Answer the following questions.

What is palatability? _____
_____

Describe how your feed tastes: _____
_____
_____

Does your feed taste good? _____

What two feeds did you use?
1. _____
2. _____

What could you do to improve the feed taste? _____
_____
_____

Why is palatability important when feeding animals?
_____
_____
_____