

 **Activity 5.2.2 Individual Requirements****Purpose**

Olympic athletes spend months and years conditioning and preparing themselves for competition. Many Olympic events, particularly swimming, require enormous amounts of physical exertion. Michael Phelps ate up to 12,000 calories per day during his quest for eight Olympic gold medals. While that quantity of calories would be excessive for the average person, his body required it to produce the energy he needed for swimming.

Nutritional needs vary based upon the age of an animal, environmental conditions, and genetic make-up. All animal feeds contain varying concentrations of the six nutrient groups: water, carbohydrates, fats, proteins, minerals, and vitamins. In the wild, animals are constantly searching for food to sustain their needs. However, agricultural animals depend upon their human caretakers for all of their nutritional requirements. In an effort to meet animal needs, rations are balanced according to the specific requirements of an animal. In livestock production, it is important to meet the nutritional requirements of animals while using the most economical feedstuffs available in order to keep the cost of rations down. What are the nutrient requirements of the animal you have chosen to study?

Materials**Per student:**

- Computer with Internet access, word processing, and spreadsheet software
- *Modern Livestock and Poultry Production* textbook
- Optional: *Tables of Nutrient Requirements* – National Academy Press
- Pencil
- *Agriscience Notebook*

Procedure

In this activity, you will determine the nutritional needs of the animal you are studying for your *Producer's Management Guide*. Use the Energy Requirement tables in the appendix of your textbook or the *Tables of Nutrient Requirements* available from the National Academies Press.

1. Find the nutritional needs of growing, maintaining, and producing animals of your species using nutritional data charts.
2. Develop a chart using a spreadsheet or table with the appropriate nutrient categories for your animal.

Minimum Requirements

- Weight
- Dry matter
- Energy
- Protein
- Major minerals
- Vitamins

Optional Requirements

- Weight change/day
- Diet proportions
- Amino acids
- Fat
- Other based on species

- The top row of your chart should have the categories of nutrients. You may make one chart with the same header row for each stage of production or separate charts for each stage. See Figure 1 for an example.

Nutrient Requirements for a Maintaining Goat With Minimal Activity								
	Energy		Protein	Minerals		Vitamins		Dry Matter
Weight	TDN (g)	DE (Mcal)	CP (g)	Ca (g)	P (g)	Vitamin A (1,000 IU)	Vitamin D (IU)	DM (kg)
30kg	362	1.59	51	2	1.4	0.9	195	0.65

Figure 1. Sample Table

- Record the data for each category and the corresponding stage of production.
- Print your chart(s) and insert in your *Producer's Management Guide*.
- Select a stage of production and size on which to base further studies of nutrition. Place a star next to your selection. You will use this data again in *Lesson 5.5 What's for Dinner?*

Conclusion

- How do the nutritional needs of your animal vary at different life stages?
- Why is overfeeding a nutrient, such as protein, not a good management practice?
- Why did you choose the stage of production to study further that you did?