

# Framework Biology 6

An Inquiry Based Science Teaching and Learning Framework

Discover  
**SENSORS**  
Supporting inquiry based  
teaching and learning

## Topic/Learning Activity

### Diet and the food pyramid - OB 1 and 2

#### Student Cohort

##### Student Level

First Year Students

##### Prior Knowledge

Day to day food habits

#### Stimulus to Engage

How do you get the students interested in the topic to start?



The above image is from a set of photos called 'Thank you America' on the 'Stimulus to Engage' area of DS Forum

<http://www.youtube.com/watch?v=q1mQCNxxbFO> 'Man vs stomach' A dialogue between a youth and his stomach as the stomach character complains about eating too much junk food!

#### Science Questions

- Initial questions leading to the questions students will work on during the activity:
- How do the above foods fit into a balanced diet?
- Why do we eat food?
- What are "snack foods"
- How would we feel if we only ate snack foods?
- Could we survive on snack foods only?
- Why do we feel full for longer after we eat a meal with lots of red meat?
- What type of food do sportspeople eat or drink before a match?

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## Learning Outcomes

### Content Knowledge

The student will be able to:

- Recall the six constituents of a balanced diet
- Recall the functions of components of food
- Recall an example of each food group
- Determine the amount of each group required for a balanced diet

### Process

- Tabulate data - List the food they eat and insert them into a table
- Determine the function of each constituent and link it to the food they eat
- Compare food requirements of various groups of people

### Skills

- Work in groups and report back to the class
- Using IT- internet research. Graphical representation of food constituents using Logger Pro, Data Studio, Data Harvest or Excel
- Critical thinking

## Questions during Activity

### Questions to drive student learning (directing them to the learning outcomes):

- Which constituents of food give us energy?
- Which constituent of food helps keep us warm and protects our organs?
- Why do we need fibre in our food? Which food group does fibre fit into?
- Which part of food keeps our skin and gums healthy?
- What is the general term for sugars, starch and fibre?
- Where do we get our proteins, why do we need to eat proteins?

### Questions to probe understanding:

- Which food groups do we get our vitamins/minerals from?
- Why do we only need one sixth the amount of fat as carbohydrates for a balanced diet?
- Which foods are you lacking in your daily diet? What functions are we lacking?
- Where do vegetarians get their protein?
- Can you suggest why someone who is suffering from anaemia might look pale and tired?
- What do you understand by a Balanced Diet?

### Questions to get students thinking about their own learning (metacognition):

- Young girls are encouraged to eat plenty of red meat, can you suggest why?
- How does cooking (heating) affect the nutritional value of our food?
- Why are teenagers hungrier than their parents?
- Can you list some foods which teenagers should eat in abundance and say why?



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## Developing the Activity

### How do you stimulate students to ask even more questions/think further?

- In Nordic Countries which have a dairy intake, why is there a high incidence of osteoporosis?
- The Inuit people of the Arctic do not suffer from scurvy even though they live on a diet of little or no fruit and vegetables. Can you suggest why?

### Possible supporting activities:

- Design the food chart for an elderly person
- Design a party for teenagers replacing the snack (sugary/salty) food with foods from a balanced diet.

### Questions for supporting activities:

## Reflecting back to Learning Outcomes

- Students understand more about the functions of the components of food.
- Improving ability to tabulate data, and make conclusions from a set of data.

## Additional Resources

### Stimulus materials, websites, etc.:

## How has the use of ICT enhanced the learning?

### Evidence of enhancement:

Photos and u-tube clips very effective in grabbing students attention and encouraging discussion and questions.

Graphing skills and understanding improved.

## Additional Comments

This activity was done with a group of First Years.

We firstly drew up a list of reasons why we eat food using some of the questions above. We linked these to the functions of foods and the components of food Carbohydrates, Fats, Proteins, Vitamins, Minerals, Water.

The students listed the foods they ate the day before in a chart.

They then transferred these food items into the chart of the food pyramid.

On the food pyramid, they were asked to list the functions of each food group.

In groups they had to compare the charts, decide if they were lacking in any of the food groups, and if this was a general trend for the group. As a class was it a general trend?

They then identified the function(s) of the food groups which were lacking. We had a discussion about what possible illnesses could arise if this trend continued,

The students enjoyed the activity, lots of enthusiastic contribution from the class. Very good learning took place.

