**Mathematics**

# What Will be an Ideal Food for a Student in 2030?

**Year Level(s): 9 - 11**

**Activity Objective:**

To find out what an ideal food would be for a student in 2030.

**The Learning Context:**

1. Students will develop an understanding that we eat food to gain energy and we burn up energy by doing physical exercise.

2. By studying the different food groups, sources of food, costs of producing food and exploring the careers available in the food industry, students will be able to develop and market an ideal food for the future.

**Curriculum Reference:**

Levels 2 – 5 – New Zealand Curriculum Number & Algebra, Geometry & Measurement, Statistics.

**Key Competencies and Enterprising Attributes:**

| Competencies | Enterprising Attributes | Indicators |
|---|---|---|
| Relating to others<br><br>Using language symbols and texts<br><br>Managing self<br><br>Participating and contributing<br><br>Thinking | 1. Enthusiastic and taking risks<br><br>2. Decision making<br><br>3. Collecting, organizing and analyzing<br><br>4. information<br><br>5. Identifying, solving and preventing problems<br><br>6. Working with others & negotiating<br><br>7. Reflection<br><br>8. Communicating | 1. Participating and contributing in all activities, trying new things, learning from mistakes, enjoying the challenge of an open ended task.<br><br>2. Selecting tasks appropriate to needs and interests, making allowances for time management, selecting appropriate information, listening to others and valuing others' contributions, making value judgements on basis on available information, student checklist.<br><br>3. Using surveys/questionnaires, research using internet and other resources.<br><br>4. Apply knowledge gained from this topic to recommend behavioural change and choice making in the future, reflecting on positive changes for the future.<br><br>5. Ongoing team/group work  and decision making, working with community/business<br><br>6. Ongoing project log/diary, written evaluation assessment, presentations<br><br>7. Presenting to peers, parents & teachers, asking questions of visitors and community members, researching information and presenting findings in written & oral form. |

**Learning Outcomes:**

Students will be able to:

- Students will develop an understanding that we eat food to gain energy and we burn up energy by doing physical exercise.

- By studying the different food groups, sources of food, costs of producing food and exploring the careers available in the food industry, students will be able to develop and market an ideal food for the future.

- Skills in Mathematics will show improvement

**Resource Requirements:**

- Teachers

- Students

- Parents

- School hospitality staff

- Outside agencies (Kensington Fitness Centre, Nutrition experts at Whangarei Hospital)

# Teaching and Learning Sequence

*Tasks and actions for students:*

- We consume food as an energy source.
- We can use the data on food labels to determine the amount of energy gained from eating an item.
- We can determine which foods require the most physical activity to 'burn off'.
- We can determine the amount and type of exercise needed to burn off specific amounts of calories.

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1. Keep an accurate food & exercise diary for 7 days stating amounts in terms of:
   - Palm size, fist size
   - Metric weights
   - Exercise diary

2. Choose a school day and a weekend day (can be adapted to analyse a meal):
   - Calculate the amount of energy gained
   - Using daily recommended calorie intake, calculate the total energy – burned energy.

3. Visits to or from dietician (hospital) and Kensington Fitness Centre to gather more information.

4. Make recommendations re lifestyle changes and reasons for them.

5. Design a 'perfect snack' for a variety of clients using different age and physical exercise criteria.

6. Determine the number of calories in a mystery package (Science dept or supermarket).  Students develop own mystery package (bring packaging/labels, circulate).

7. Family Takeaway Meal
   - Takeaway night
   - Plan a meal for your family taking into account what they have learned
   - Cost
   - Value
   - Reasons/decisions

8. Left at home for a weekend on your own.  Given $---- from parents.  What are you going to buy (to eat)?

9. Careers – visitors from the food industry
   - Takeaways
   - Supermarket
   - Café
   - Canteen
   - Hospital
   - Meals on wheels
   - Bee keeper
   - Market
   - Organics vs farmers
   - Fishermen
   - Chicken farmers
   - Subway/McDonalds
   - NorthTec
   - Hospital – watts?

   Choose one career to explore
   - Training needed
   - Entry requirements
   - Hours/week
   - Remuneration
   - Positives/negatives of the job
   - Wastage/power – use of resources
   - Future implications

10. Food Processing ( Including time series analysis of production capability of agricultural products or food sales /demand)

- Economics
- Fresh – garden, supermarket, frozen
- Packaging costs
- Map of the world
- Country of origin of all food in the pantry

11. Food in the Future

E-mail/contact fast food giants – plans for 2020 and beyond (Close Up programme)

12. Ideal food in 2030

- Advertisement – sell the idea to the class
- Model
- Packaging
- Written reasoning
  - Energy levels
  - Food specs
  - Nutritional value
  - Enjoyment
  - Sustainability
  - Cost of food
- Marketing has a cost
- Value of own input
- Paper money (3)    (2)     (1)
- Improvements needed to products that don't make it

13. Issues to consider

The creation of new genetically modified foods verses life style changes.

14. Where is the Maths?

- Number
- Fractions/decimals/percentages/integers/rates/ratios
- Place value
- Standard form
- Algebra
- Algebraic equations
- Conversions
- Linear relationships
- Quadratics
- Measurement
- Geometry
- Global
- Bearings
  - Orienteering
  - Circuit training
  - Transformational geometry
- Statistics
- Problem solving

**Reflective Questions:**

- Focus will be on open questions, active listening skills and reflection time integrated into each lesson.
- Students will be encouraged to share their learning experience with others.

**Possible Assessment Activities:**

- Self-evaluation
- Peer evaluation of group work
- Teacher observation
- Parent/student/teacher interviews
- The preparation of a report setting out process/ analysis/ decisions and rational. (Based on Task 12)