

**THE SOCIALLY RESPONSE-ABLE MATHEMATICS EDUCATION
PROJECT**

Is McDonald's 'good' for the world?

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Most students (from city and large regional centres) would know about and have probably used a McDonald's food outlets. This gives an immediate familiarity and relevance to the topic. Given that McDonald's has grown so fast around the world [and is now in many countries; is constantly in TV advertising; employs many thousands of people; is the focus of much discussion about diet and healthy lifestyle; and is used so much by so many] it provides an effective means by which to explore many big ideas and challenging questions.

Social Response-ability and Mathematics

The topic has been deliberately chosen to provide students with a way to explore doing, using and practicing mathematics. The explicit intention is that students will experience how mathematics can help them understand and interact with the world around them. We want students to understand that using mathematics can help them make socially response-able decisions.

There is no intention that by doing this unit students will answer the question a certain way. They may not feel they can answer the question completely once they have gathered sufficient evidence.

The layout

The rest of this material offers some directions and ideas that can help a group engage productively with the aims of the unit.

A few sections deal with aspects of the process the group might follow. These sections are relevant for framing the ethos of this project and detailing aspects of the work that are important no matter what particular focus a group might eventually choose to investigate in depth. These sections are:

- Getting started
- Doing research
- Example of activities
- Finishing the project

Getting started

The purpose of this session is to create interest and begin to see the scope of the big questions. There are many alternative starting points for this project. There is no one right way. Here we have explored three alternatives in some detail and suggested few others.

Alternative One: Discussion about the big issues of today

In an open discussion about issues impacting on our society today a range of issues are likely to emerge. These include sustainability, energy, food, water and global population.

The idea of looking at some of these things by exploring McDonald's can be made along with other big questions. Choose the one that is of most interest, or allow students to choose the question of particular interest to them.

Alternative Two: Fast food discussion and survey

Students may conduct a survey of the opinions and experiences of their peers and/or families on:

- What are their views on fast food?
- Where do they get fast food and how often?
- Why do they consume/not consume fast food?
- How often do they think they should eat it?
- What is your favourite food and drink?

Use the information generated by discussion and/or the survey to create the project.

Alternative Three: Watching 'Supersize Me'

Watch the documentary 'Supersize Me' by Morgan Spurlock.

During the movie ask students to identify the data used in film and the situation in which it was used. For example, 100 million Americans, 43% of fast food market, McDonald's spend 1.4 billion dollars on advertising, for a few cents more people can supersize a meal, 1 in 4 Americans visit fast food outlets, 100 million Americans are obese...there are more examples.

Make sure that each person in the class has some examples. Ask students to talk in pairs about their examples. Do they understand what they mean? For example, does the student have a sense of, and write, the large numbers that are referred to? Do they understand the way percentages, or 1 in 4, is used? Another example is the reference to being obese – what does that mean and how is that calculated? How do they know there are 100 million?

Move the class to talking about how the data has been used in the film:

- How has Morgan Spurlock used quantitative data in this film?
- Why has he used it and for what effect?

- Does using quantitative data help us understand better what the situation is?
- Do you think the data is accurate and the use of it appropriate?
- How should we make those judgements?
- If they are accurate what is the possible effects on humans or the environment?

The purpose of this discussion is not to come up with the 'answer'. It is to generate discussion and to open students to new ideas. In particular we to help them see how mathematical ideas and techniques are used and that mathematics can provide a different perspective to an issue and help us understand it better.

Some other alternative ideas for getting started (or for using during the project)

Other possibilities to get started include:

- Explore a range of websites about McDonald's.
- Visit McDonald's food outlet for a meal noting number of clients, their ages and other demographic characteristics.
- Visit Ronald McDonald's House for experience and ask specific questions about their service and funding.
- Do a workplace shadow visit to McDonald's recording some information about it.
- Make a collection of McDonald's adverts and the information in them.
- Who owns McDonald's and what is the relationship of local franchises to the international company?

You may have a local context that suggests a better introduction. For example, a new McDonald's store may have just come to your country town. Choose a focus that the group can connect to.

Bringing it together

Finish this initial section by outlining to the students (if not done already) the different sub-questions you are going to explore together in order to answer the big question.

OR you may prefer to have a session with the students where they identify the possible areas for exploration and the questions they need to answer.

A quick word on assessment

Formal assessment is not the focus in getting started in this work; getting started is. The teacher will mainly be assessing the extent of student interest to help in planning support for this and future activity.

However where mathematical ideas and techniques are used it does present the teacher with an opportunity to observe how students relate to mathematics. Aspects of this include:

- capacity with identifying the mathematics
- facility with the mathematics
- using the mathematics in their discussions and work.

The teacher will have the opportunity to notice who can [or perhaps cannot] deal with specific topics [such as large numbers, metric units or reading graphs and tables].

Resources

- The DVD 'Supersize Me'
- Website of McDonald's and other websites created about McDonald's.

www.mcdonalds.com

<http://www.aboutmcdonalds.com>

<http://bestpractices.mcdonalds.com>

<http://www.mcspotlight.org/>

Doing research

At various times in this project, students may be involved in collection of data from a variety of sources. It is essential that the class discusses what doing research means, and the raft of ethical considerations involved in doing this research.

What does it mean to do research?

Some of what follows in this project involves students:

- finding out what others think including family
- keeping and making records about themselves
- exploring McDonald's website and other websites with alternative information
- going into a McDonald's workplace and asking questions and gathering information
- visiting Ronald McDonald's House
- making judgments about the aims and practices of a commercial company

Some of what we will be doing involves competing values and beliefs about lifestyle, economics and so on.

Some of what we do might become known by others and published.

As such we need to be conscious of our methods, our work and our conclusions.

What principles do we need to ensure our ethics are sound?

If we were to do this research as a project at a university what 'test' would we have to 'pass'?

Perhaps:

- Generate list for yourself
- Look at other lists and see if yours is sufficient
- Look at the process for getting research approved at university.

These may include

- Confidentiality of sources of information
- Balanced views and sources
- Identifying possible bias by researcher

Some important questions that go with doing research are:

- What constitutes evidence?
- What makes something valid and reliable evidence?
- When something is used or offered as evidence, are we clear about what it is evidence of?

Examples of Activities

Whether by negotiation, by discussion and teacher facilitation or by teacher presentation, a list of big challenging questions can be generated. For example:

- 1. How big is McDonald's?**
- 2. Who are McDonald's?**
- 3. What is the economic impact of McDonald's?**
- 4. What is McDonald's impact on the environment?**
- 5. What is working for McDonald's like?**
- 6. Is McDonald's healthy or not?**
- 7. Fast and cheap?**
- 8. How much advertising is done?**
- 9. Does McDonald's help the community and society?**

The students may decide which challenge they want to explore, plan a method to approach the investigation and conduct it under assistance from the teacher.

1. How big is McDonald's?

Guiding questions

What do we mean by 'big'? Is 'big' necessarily good?

How many food outlets are there altogether?

How many food outlets and in how many countries around the world?

What are their plans for future development?

What is the income of the business?

What has been the growth of their income over the years?

What is their expenditure?

How many employees are there?

How many customers?

How fast have they grown?

- What does 'fast' mean? How will you tell?
- Fast compared to what? [Similar food chains? The local hamburger caravan?]

Big compared to what? [Similar food chains? The local hamburger caravan?]

What is their market share? Is it different in different countries?

What is the effect of McDonald's on other food outlets?

Students can generate their own questions as they start to explore this big question.

Ideas for activities

Students could explore the McDonald's website and annual reports and other related sites.

Students start to identify information to answer the key questions. In doing so they will need to interpret various tables and graphs and reorganize the information for their own purposes.

Alternatively the teacher could provide students with a selection of relevant sections of a report.

2. Who are McDonald's?

Guiding questions

Discuss with students what other targeted questions they might need to ask to address this challenge. Possible questions include:

- Who runs McDonald's? How are they structured? How are decisions made? Where are these decisions made?
- Who runs a McDonald's food outlets? Who owns that food outlets?
- What is McDonald's income and expenditure
- How big should any company get? Are there benefits of getting or being 'big'? are there any downsides of 'big'?
- What is the history of McDonald's? Their growth and development? How did it happen?
- Are all food outlets the same all over the world? How similar? Is there any local variation? How did this happen? How do they get all food outlets to be similar?
- What is the impact of this on other cultures? How might we find out? If not the same how do they vary? Are they culturally sensitive? How would we find out?
- Consider other fast food organisations. In what ways are these organisations similar to, or different from, McDonald's? [Consider things like their size, scope and depth].

Some ideas for activities

- Explore the company website and other websites about McDonald's.
- Write to company employees in the central organization.
- Interview local food outlet owners.
- Present an overview of McDonald's. This should include things like:
 - who they are
 - how big they are
 - how they have evolved
 - the extent to which they are the same all over the world
 - their impact on other cultures.

[Students could do this as though they were presenting the key elements of an annual report. In doing this work the students will form some conclusions about the size, cultural impact and ways of working of the McDonald's company. They could state these conclusions, but only if such conclusions are supported by evidence. Some of that evidence will need to be quantitative.]

3. What is the economic impact of McDonald's?

Guiding questions

How do you assess economic impact of a large company? Is it only about income, expenditure and profit, or might other factors need to be considered? Consider the following things:

- employment numbers
- economic power of those employed
- the quantity of food McDonald's buys
[Can these things be measured easily? Can you add to this list?]
- What is the impact on other businesses? Food suppliers?

Where do McDonald's get their supplies? How much money is spent on supplies? Can you describe some of the supply chains?

What is the economic power of those who supply McDonald's? Who benefits from growing and selling the supplies?

Sometimes there are advertisements for 'affordable meals': affordable for whom? Who benefits? Who loses out?

How reliant is the world on McDonald's? What would happen if they ceased to trade? Would the government step in and help them survive?

Some ideas for activities

These are big questions. A group would need to spend some time working out what they mean, and deciding what they need to know and how they would find out.

Some of the ideas need further exploration eg what do we mean by 'affordable'?

4. What is McDonald's impact on the environment?

Guiding questions

Where do McDonald's get their supplies? What is the impact of that on those environments?

How much rubbish do McDonald's food outlets around the world create? Is it a similar amount in each country? What happens to it?

Would the rubbish still exist if McDonald's were not creating it?

What is the impact on animal welfare?

What is the impact of McDonald's on greenhouse gas emissions? Would that be any different without them?

How much water do McDonald's and their suppliers use? What are they doing about it?

How much impact does McDonald's have on raw materials (land, sea)?

Some ideas for activities

Explore McDonald's website and other websites relevant to the issue.

Find and discuss McDonald's policy on describing and reducing their environmental impact.

Evaluate this policy. What else could they do?

5. What is working for McDonald's like?

Guiding questions

What employment opportunities exist within McDonald's? What is the impact of numbers and opportunities? Does the company have trouble filling certain employment positions?

What are the working conditions and employment practices for different groups in the company? Do these conditions vary around the world for each group? If so, why might this be the case?

What training does McDonald's provide? Are there other benefits from this training? If so, what benefits and for whom?

What opportunities does McDonald's afford to suppliers? Do suppliers treat McDonald's differently to other companies? If so why might this be the case? What might be the impact of this on society?

What age bracket are most of employees at McDonald's? Why? What are some possible impact of their policy and practices?

Some ideas for Activities

Students can find out what they can from McDonald's as a company.

They can also investigate particular conditions of a local store.

Survey few McDonald's current or past employees about their work conditions and length of service to the company.

6. Is McDonald's healthy or not?

Guiding questions

What is 'healthy'? What factors deserve to be considered in answering this question?

What does a person need around energy intake?

What is the energy content of McDonald's food? How does this compare to similar foods from other sources?

Does the size of a burger matter to the energy content? Does it matter to the healthiness of the burger?

What are the main ingredients in McDonald's food? What factors deserve to be considered in answering this question? [Do these things matter: largest amount of a single substance, used in most countries, or used in most food items available?]

How does McDonald's cook food? What factors influence their choices around cooking processes? What factors influence their choices around packaging and storage of food?

Some ideas for activities

Maintain a record of your diet for a week

Calculate energy consumption

Survey family and friends about their views and eating habits

Describe what you consider to be a healthy diet for you

Discuss issues of overweight and obesity

Investigate food patterns in families or other groups within Australia. Have any patterns changed over the years?

Identify the energy in foods that you regularly eat

Document the energy content of McDonald's burgers and other food that you have eaten

Work out if a Big Mac has changed in size over the years

Compare your energy daily intake to your energy requirements. How much fat is in your diet?

Do a plan of how you might eat every meal for a week at McDonald's. Calculate the energy consumption, fat intake and cost. Compare these to what you normally eat.

Debate these topics: *"The ingredients in McDonald's food is healthy"* or *"The way McDonald's cooks their food is healthy"*

7. Fast and cheap?

Guiding questions

Is McDonald's food actually value for money? What factors could be relevant to developing an answer to this question? What ones of these could be measured easily?

What are the costs of home cooked alternatives?

Set up way of comparing 'value' between home cooked food and McDonald's

Do you get McDonald's food fast? In this context does fast have any down sides?

Some ideas for activities

Calculate the actual cost of an evening meal for a family. Consider the ingredients, energy in cooking and the time spent in preparation and cleaning up.

8. How much advertising is done?

Guiding questions

What advertising does McDonald's use? Consider things such as TV, magazines and newspaper, give-away inserts in local papers, sponsorship deals of sporting clubs, product placements and so on.

What is their audience? Is there more than one audience?

Is the company truthful in its advertising?

How do they compare with other fast food advertising?

Why does McDonald's advertise the way they do?

How can you analyse advertising to see what it is trying to do?

Some ideas for activities

Search papers and magazines for examples

Over a week record TV and other advertisements for both McDonald's and other fast food companies. Consider focusing on a particular period of the day.

Look for organisations they sponsor – how is that done?

Interview a McDonald's executive to find out why they do what they do

Interview ad creators to find out what they do, and how and why they do it

Get expert advice on how to analyse advertising seek input from an academic and from the advertising industry

9. Does McDonald's help the community and society?

Guiding questions

What else do McDonald's spend their money on?

Ronald McDonald's House?

Charity?

Training?

Education?

Environmental solutions?

Social responsibility solutions?

Healthy living solutions?

How does their community spending compare to their income/profit? How does this compare to charity spending by average Australian family?

How does the community spending compare to advertising and sponsorships?

Some ideas for activities

Having found out what McDonald's do for the world start to answer these questions:

What are the benefits of this for the world?

How can we assess the impact of this work? On how much is invested? Compared to income?

Or on how many people are helped?

Concluding the project

Many of the issues raised in the examples of big questions and activities about do not have a simple answer. Here it is more important to discuss a range of quantitative evidence that can be generated to shed some light on the issue.

Students may be requested to make a presentation or write a report that

- Attempts to shed some light on the big question adopted.
- Provide evidence for their conclusions. Bring together the conclusions and recommended action from each challenging question.
- Note the mathematics they have used and learned.
- Describe how mathematics has helped them understand situations/research/solve problems etc. Give examples for each.

They also may submit the report to a conference for peers, schools or parents.

Alternatively they can create an article based on the report for a newspaper focusing on quantitative data used.