Nuffield Design & Technology
working in the curriculum

How do you take your tea?
five and a half hours work

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Hot drinks are an important part of social and domestic life. Most families enjoy sharing hot drinks together while they watch television or chat. Many hot drinks are advertised in papers, magazines, on hoardings and on television. Different cultures enjoy particular hot drinks. Being able to make your own hot drink is a sign of “growing up” for children in many families. You can use this everyday experience as the starting point for designing and making a food product that other people can enjoy. The children investigate the uses of hot drinks in their own families. They find out the preferences of a named family member and design and make a drink for that person.

In this unit children will learn:

- about a common food product, and how it is produced, sold and prepared in the home; (Session 1)
- to find out and record the needs and preferences of a member of their own family; (Session 2)
- to observe and record the process of extraction, leading to a greater understanding of how hot drinks are made; (Session 3)
- about health and safety issues when using kettles and hot water. (Session 4)
the small tasks
the focused practical tasks

1. Why people make tea
   60 minutes

2. Finding out the needs and preferences of the consumer
   30 minutes homework
   30 minutes in class

3. Investigating the extraction process
   30 minutes

4. Learning how to make a hot drink safely
   30 minutes

5. Writing a specification for a hot drink
   30 minutes

the big task
the design and make task

To discover a particular person’s preferences for a hot drink and to meet those preferences by serving a drink that meets this specification.

60 minutes

The evaluation
30 minutes

Unit review
30 minutes

if you make the drink in a glass container you can use the sight of the pale milk swirling into the dark tea to discuss what is happening during mixing. You can ask children to explain why we use tea spoons.
The children can decide on the following:

- the sort of tea (traditional tea, fruit tea, herb tea)
  - required learning in Sessions 1 and 2,
  - design decision made in Session 5:

- the strength of the tea (weak to strong)
  - required learning in Sessions 1 and 3,
  - design decision made in Session 5:

- additions to the tea (milk, lemon, sugar, honey, herbs/spices)
  - required learning in Session 1 and 3,
  - design decision made in Session 5:

- the means of serving (cup, mug, beaker or glass)
  - required learning in Session 1,
  - design decision made in Session 5:
Teacher input

Use the advertisements for tea as the starting point for a discussion of the social importance of hot drinks in general and infused hot drinks in particular. The tea ceremonies of other cultures, and the hospitality customs of our own should be discussed. Is there a common accompaniment, e.g. biscuits, sweet puddings?

If there are children in the class whose families do not drink tea, they can talk about the hot drinks that they do drink. There may be children from ethnic minorities who add spices to tea, or who drink tea from unusual containers.

There may be some who have heard of herb infusions to be drunk for health reasons. Include less traditional teas in the discussion e.g. powdered, granulated instant tea, and fruit and herb teas that contain ingredients other than the tea plant. Mention the different nutritional benefits of the various hot drinks.

Pupil activity

Tell the class that they will work in small groups to do some research of their own. Explain the information sources that they can use e.g. books, magazines, CD ROM, and that each group can focus on a different aspect e.g. social, cultural, commercial, medicinal, etc. The findings from each group can be combined to make a whole class display and the class can use this as a reference source during later sessions.

Resources

Stimulus: a selection from this suggested list e.g. black leaf tea, green leaf tea, tea in variously shaped teabags, instant tea granules, powdered lemon tea, fruit teabags, herb teabags, pictures of tea pluckers at work, tea plants, advertisements for tea, reference material.

Health and safety check

It is important to find out if there are children in the class who are sensitive to certain foods. Send home a list of all the ingredients to be used so that parents have an opportunity to warn of any potential problems. Discuss the hazards and risks involved in making hot drinks and how the risks can be controlled by being careful and using the correct procedures. Ensure that the children understand the need for adult supervision if they make hot drinks at home.
SECTION 4

finding out the needs and preferences of the consumer

Teacher input

Explain to the class that every child needs to choose one member of their families and then find out what hot drinks these family members enjoy. The children need to find out when they enjoy the drink, how they make it and how they like it served. They should also ask about general taste preferences and willingness to try new types of hot drink.

Homework activity

Tell the class that they will need to record this information neatly for homework and bring it to school for the next lesson.

Pupil activity

After gathering all the above information at home as a homework activity, children should have the opportunity to share their findings with the rest of their group, or with the whole class if there is enough time.

Resources

Consumables: paper;
Tools: pens.

Health and safety check

Discuss the hazards and risks involved in getting the views of others and how the risks can be controlled by polite behaviour and being considerate.
**Teacher input**

Carry out the following demonstration for the class.

Place hot water in each of several clean, clear glass containers, jam jars will do. Add a particular sort of tea to each container. You can use some of the following: different leaf teas, teabags, tea granules. Tell the class to observe closely what happens. The tea will colour the water; the colour will be strongest nearest the tea. The resulting liquids should look, taste and smell different.

**Pupil activity**

The children should record the equipment and method used, their observations of the extraction and responses to the drinks produced.

Use the following questions to help children make careful observations.

- Where is the “tea” colour the darkest? Where is the “tea” colour the lightest? Try to explain why?
- In which direction is the colour moving?
- What is left at the bottom of the container?
- How can we remove the leaves before drinking the tea?
- Why put tea into teabags?

**Resources**

**Consumables:** selection of teas as in Session 1, paper;

**Tools:** kettle, clear containers for observation, pens, pencils, tea strainer.

**Health and safety check**

Discuss the hazards and risks involved in using hot water for investigations and how the risks can be controlled by being careful and using the correct procedures.
learning how to make a hot drink safely

**Teacher input**

Show the class the basic sequence of actions required in making a cup of tea, using leaf tea and using a teabag. Use members of the class to help with the demonstration. The safe procedures should be made clear.

**Pupil activity**

The children should write out the safe procedures as a reminder for themselves. They should be allowed to taste the teas when they have cooled down a little. Every child should have one spoon that they wash in between tastings, or enough spoons for each sample.

**Resources**

**Consumables:** leaf tea, tea bags, paper, sugar, milk, lemon, mint, spices for tea e.g. cinnamon, cardamom;

**Tools:** pens, kettle, tea pot, spoons, cups and saucers, strainer.

**Health and safety check**

Revisit the discussion about controlling risks when making hot drinks. Discuss the hazards and risks involved in tasting food products and how the risks can be controlled by observing basic food safety rules.
writing a specification for a hot drink

Teacher input
Tell the class that each one of them now needs to use the information from Session 2 to write a detailed specification for the drink they will design and make for their named family member. Explain that it does not have to be a traditional drink, but it should match that person’s preferences. Remind the class that the specification should include information about the following:
♦ the sort of tea;
♦ the strength of tea;
♦ additions to the tea;
♦ how to serve the tea.
You may like to use the ready-to-copy sheet ‘Specification for a hot drink’ with some children.

Pupil activity
Each child should produce a clear written statement of the ingredients, method of preparation, and presentation with labelled drawings to make the processes and the specification clear.

Resources
Stimulus: information sheets from Session 2;
Consumables: paper or ‘Specification for a hot drink’;
Tools: pencils.

Health and safety check
Discuss the hazards and risks caused by using ingredients which are unhealthy or which cause allergic reactions and how these risks can be controlled by careful recording of information provided by the consumer.
**SECTION 4**

**teaching the unit**

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**Session six**

### The big task: making a hot drink to a specification

#### Teacher input

Explain to the class that they each have to make the drink they have designed in Session 5. Tell the children that they should work safely under adult supervision and record on paper what they do. They should record the taste evaluation too when the drink has cooled down enough. You may want to use the ready-to-copy sheet 'Tasting notes' with some children. Any changes they make to their designs should be noted and explained.

#### Pupil activity

Each child produces the hot drink according to his/her individual specification. It will be important to organise a rota for the children so that they carry out the making of the hot drink under adult supervision.

If possible their consumers should come in to school to taste and evaluate the drink themselves, but this may not be practical to arrange. You can suggest that the drink making be repeated at home, under adult supervision. Another alternative is for pairs of children to evaluate each other's drinks, taking on the role of consumer and referring to the specification, not to their own preferences. Children will record the taster's descriptions/comments on their 'Tasting notes'.
the big task (continued)

**Extension work**
Children who finish early or who need an extra challenge could be asked to do the following.

- Design the packaging and/or advertising copy for a new brand of hot drink aimed at people with similar preferences to their own consumer.
- Extend their research on tea from Session 1, and store their work on computer, possibly as a multimedia presentation about tea – where it is grown, how it is processed and how it is used to make drinks.

**Resources**

**Stimulus:** ‘Specifications for a hot drink’ from Session 5;

**Consumables:** ‘Tasting notes’, teas, coffee, drinking chocolate (this selection will depend on the ingredients the children have included on their specification sheets) milk and sugar, paper;

**Tools:** kettle, mugs, spoons, pencils.

**Health and safety check**
Revisit the discussion about controlling risks when making hot drinks and ensure that the children understand the need for adult supervision when they make hot drinks. Revisit the discussion about controlling risks when handling food materials.
SECTION 4  teaching the unit

evaluating the final product

Teacher input
Explain to the class that the aim of this session is to evaluate individually their finished drinks by comparing the information on the ‘Tasting notes’ from Session 6 with the ‘Specifications for a hot drink’ created in Session 5. You may like to use the ‘Evaluation for my hot drink’ available as a ready-to-copy sheet with some children. Use the following questions for the subsequent discussion.

♦ Did your drink look/smell/taste as you expected? Why?
♦ Did you remember the safety rules as you made your drink?
♦ Could you design and make a different drink for another person?

Issues that come up in the subsequent discussion could be added to the display already created after Session 1.

Pupil activity
The children should write their own evaluation of the drink they made and then children should tell the rest of the class who they were designing for, how the making went, which changes they made, if any, to the design and whether they are pleased with the final product.

Resources
Stimulus: ‘Tasting notes’ from Session 6;
Consumables: ‘Evaluation for my hot drink’ (own design or ready-to-copy sheet), paper;
Tools: pens/pencils.

Health and safety check
Discuss the hazards and risks involved in drinking hot drinks and how the risks can be controlled.
section four

teaching the unit

Teacher input
Explain to the class that it is important to think about how to get better at design & technology and that they can do this by discussing the following questions.

- What did you learn about hot drinks?
- How did you learn that?
- Where could you find out more?
- What did you find difficult about this project?
- Did anything surprise you about the way hot drinks are made?
- What could have been done better?
- How could you make sure it was done better?

Pupil activity
The children should discuss the questions in groups and when they have finished you should ask each group to make a short report to the class. The class should agree a target based on these reports for improvement for their next design & technology unit.

Resources

Stimulus: ‘Tasting notes’ from Session 6, ‘Evaluation for my hot drink’ sheets from Session 7, ‘Specification for a hot drink’ sheets from Session 5;
Consumables: paper;
Tools: pencils.

Health and safety check
Discuss whether the class used hazard recognition, risk identification and risk control to design and make safely.
## Vocabulary

<table>
<thead>
<tr>
<th>Session 1</th>
<th>Session 2</th>
<th>Sessions 3–4</th>
<th>Sessions 5–7</th>
</tr>
</thead>
<tbody>
<tr>
<td>tea, leaf, bud, pluck, wither, crush, granules, powder, dried fruit, herbs, infusion</td>
<td>preferences, allergy, dietary requirements</td>
<td>extraction, kettle, boil, steam</td>
<td>design specification, tasting notes, evaluation</td>
</tr>
</tbody>
</table>

## Resources Summary

### Stimulus Materials
- **Session 1**: A selection from: black leaf tea, green leaf tea, tea in variously shaped teabags, instant tea granules, powdered lemon tea, fruit teabags, herb teabags, pictures of tea pluckers at work, tea plants, advertisements for tea, reference material.

### Consumable Materials
- Paper
- Selection of teas as in Session 1
- Leaf tea, teabags, paper, sugar, milk, lemon, mint, spices for tea e.g. cinnamon, cardamom
- Information from Session 2
- ‘Specifications for a hot drink’ from Session 5
- ‘Tasting notes’ from Session 6
- ‘Evaluations for my hot drink’ from Session 7, ‘Tasting notes’ from Session 6, ‘Specifications for a hot drink’ from Session 5

### Tools
- Pencils
- Kettle, clear containers, timers, pencils, tea strainer
- Pencils, kettle, teapot, spoons, cups and saucers, strainer
- Kettle, mugs, spoons, pencils
- Pencils
- Pencils
**Literacy**

This module lends itself to a variety of genre of writing.

A recount of observational records could be written during the investigation as could instructions for making a cup of tea exactly the way you like it. This work would fit well with the objectives in term 1.

Explanations are always a difficult genre to write but this module provides a suitable purpose for writing about dissolving. This is a challenging piece of writing probably only able to be attempted by the able scientists. For other children notes about how sugar dissolves could be given to the them all jumbled up to be put into a suitable order to write and then they could turn the notes into an explanation. This fits well with objectives in term 2.

**Science**

Several PoS can be covered during this module. The children will be able to consider how to separate insoluble solids from liquids by filtering. Tea strainers are probably not a common sight nowadays! They will also be able to look at the fact that some solids don’t dissolve, tea, and that others do, sugar.

The investigative skills of planning, obtaining and presenting evidence and considering evidence and evaluating will be covered when investigating the different types of tea.

This work will be good preparation for the QCA scheme of work 6A ‘More about dissolving’.

Evaporation and condensation could also be looked at when boiling water.
Specification for a hot drink  

Name: __________________________

Who will this hot drink be for (i.e. your consumer)? __________________________

What sort of hot drink will it be? (e.g. traditional tea, fruit tea, herb tea, other)

__________________________________________________________________________

How strong should the tea be? (e.g. weak, medium, strong) ____________________

What will you add to the tea? (e.g. milk, lemon, sugar, honey, herbs/spices, other)

__________________________________________________________________________

How will you serve the tea? (e.g. cup, mug, beaker or glass, other) ______________

Are there any Health and Safety issues to remember when designing and making this hot drink? (e.g. related to the consumer’s needs, your own safety and that of the other people in the classroom with you)

__________________________________________________________________________

Using written text and labelled drawings, describe what ingredients you will use, the method you will use to prepare your hot drink and how you will present it to the consumer. 

__________________________________________________________________________
Tasting notes

Name ____________________________

Name of person tasting the hot drink ____________________________

What sort of drink is this?

traditional tea ☐ coffee ☐ herb tea ☐ fruit tea ☐ other ☐

If “other” have a guess at what it is made from.

_________________________________________________________________
_________________________________________________________________

From the taste how do you think it was made?

leaves ☐ bag ☐ granules ☐ powder ☐ other ☐

If “other” have a guess at how it was made.

_________________________________________________________________

Would you say the taste is: weak ☐ medium ☐ strong ☐

Do you think anything has been added to this hot drink? Yes ☐ No ☐

If “yes” which of these do you think have been added?

milk ☐ lemon ☐ sugar ☐ honey ☐ herbs ☐ spices ☐ other ☐

If “other”, have a guess at what was added.

_________________________________________________________________

Do you like this hot drink? Yes ☐ No ☐

Do you have any other comments? ______________________________________
_________________________________________________________________
<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Comment</th>
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</thead>
<tbody>
<tr>
<td>Was the drink tasted by the person it was designed for?</td>
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<tr>
<td>If no, do you think that will have an effect on the evaluation?</td>
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<tr>
<td>Did the taster like the drink?</td>
<td></td>
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<tr>
<td>Did the taster know what kind of hot drink it was?</td>
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<tr>
<td>Could the taster tell if the drink was weak, medium or strong in flavour?</td>
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<tr>
<td>Could the taster tell what, if anything, had been added to the drink?</td>
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<tr>
<td>Did the taster have any comments about the drink?</td>
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<tr>
<td>Did you serve the drink in the sort of container you had planned to use?</td>
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<tr>
<td>If no, why not?</td>
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<tr>
<td>Did you use the method you had planned to use to make the drink?</td>
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<td></td>
<td></td>
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<tr>
<td>If no, why not?</td>
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<td></td>
</tr>
<tr>
<td>Did you use the ingredients you had planned to use in the drink?</td>
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<td></td>
<td></td>
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<tr>
<td>If no, why not?</td>
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<tr>
<td>Did you have any problems related to health and safety when you were making or serving your hot drink?</td>
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<tr>
<td>If yes, explain.</td>
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</table>
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