A complete health and family management course for the Caribbean

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BOOK 2

HOME Economics

IN ACTION

FOURTH EDITION

A complete health & family management course for the Caribbean

Caribbean Association of Home Economists

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Contents

About the series

Caribbean Home Economics in Action: A complete health and family management course for the Caribbean is designed and developed by Caribbean authors for Caribbean secondary school students. This three-book course has a long history in the region and resulted from collaboration between the Caribbean Association of Home Economists and the Toronto Home Economics Association. The funding for the initial research, writing, editing and preparation of graphic material, all of which took place in the Caribbean, was granted by the Canadian International Development Agency.

Background for the writing was developed in a research project on Caribbean Lifestyle designed by members of the Caribbean Association of Home Economists and the Toronto Home Economics Association. Investigation was carried out in the territories by members of the Caribbean Association of Home Economists. The Caribbean Examinations Council Secondary Education Certificate Home Economics Syllabuses were used as a basis for the subject matter covered.

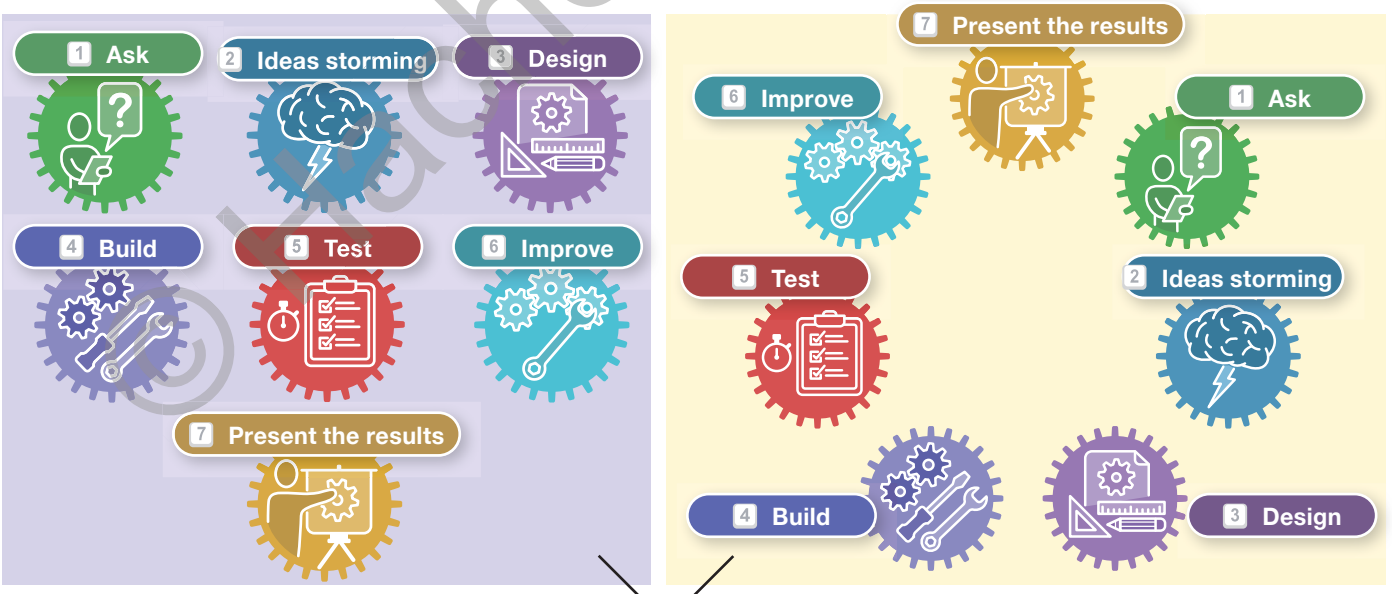
It was the objective of the Caribbean Association of Home Economists that the books' content be valuable for both classroom use and for student, teacher and home reference. It is hoped that individuals using the materials throughout the territories will be the best judges as to which segments will be used for each purpose. To that end, each segment has been revised to meet the evolving needs of the Caribbean student taking into consideration the 21st century learning environment and STEM integration.

It is hoped that *Caribbean Home Economics in Action: A complete health and family management course for the Caribbean* will find its way into the hearts of every Caribbean student in every Caribbean home.

How to use this series

In its fourth edition, this textbook remains a foundation course for the Caribbean Examinations Council Secondary Education Certificate in the three areas of Home Economics. The course is therefore written for the junior secondary student and is spread over the three books in the series. Process is the main feature that distinguishes these texts from many other Home Economics texts. The books illuminate how families deal with issues that affect them.

The substance of the text has not changed. However, the Caribbean Association of Home Economists is aware that Home Economics Education in the Caribbean is changing. Similarly, the Home Economics curriculum is focusing on developing critical thinking skills and learning about the application of technology. The book has therefore been thoroughly updated with the inclusion of current practices, materials, and features designed to enhance student learning and understanding.



A guided approach to the application of the design process in each area of Home Economics is used to build students' confidence as they progress from apprehension about critical thinking and problem-solving processes to the mastery and autonomous thinking, which will aid in finding solutions to the challenges faced by the Caribbean.

Chapters open with objectives to stimulate student interest and focus attention on important chapter content.

In this chapter, you will:

- review the stages in the design process
- explore in greater detail how to identify a problem
- develop a design brief for the problem identified
- explore in greater detail how to generate ideas by exploring possible solutions
- explore in greater detail how to select the best possible solution
- test and evaluate the solution
- present a report.

- Research the management processes that your family makes use of daily.
- Write a paragraph about the types of decision that were considered by your family before your family housing was selected.
- Sketch your future dream house.

In order for anyone or an activity to succeed, it is important that a plan is made on what, how and by when this activity is to be achieved and what are the desired goals. If anyone tries to take up a business or a task without a goal or a plan, they will fail because they are not prepared for the processes.

Wherever possible the content is differentiated to make it more student-friendly.

Activities, which are placed in focus boxes throughout each chapter, allow students to put theory into practice. The critical thinking element of the activities allows students to apply the information they have learnt to practical situations.

ACTIVITIES

Robert is a sixth form student, who is involved in a lot of extracurricular activity at school, he is also the captain of his church Bible quiz team and plays on his community basketball team. He is also preparing for CAPE examinations. Having to do all of these activities overwhelms him at times.

1 Use the strategies outlined for good time management to assist Robert in managing his time wisely.

2 Outline at least five benefits of good time management.

Questions are placed at the end of each chapter to encourage students to probe into the chapter content, making connections and gaining insights. They also provide excellent review for examinations. Book 3 contains a variety of questions, which cover the whole course. The questions, which include matching, true/false, multiple choice, cloze passage, short answer, case study and structured essay, cater for the needs of different abilities.

What have I learnt?

Multiple choice questions

Select the letter that corresponds with your answer.

1 You find that most days are very hectic and you are not able to complete all your activities on time. What can you do to help yourself?

A Tell others about what you have to do.

B Make a checklist of what has to be completed.

C Make a to-do list and rank the activities in order of importance.

D Just go with the flow and try to complete all that you can think of.

2 Which of the following is NOT a **feature of management**?

A A series of continuous and related activities

B Works with people and resources in order to achieve goals

C Can be measured in terms of hours

D Focuses on reaching goals

Glossary

acquired immunity immunity acquired when the body produces antibodies, as a result of immunisation or a non-fatal attack of the disease

amino acid the small molecules that join together to make proteins

amniotic sac the fluid-filled bag in which a baby develops

Throughout each chapter there are red boldfaced key concepts, which are also defined in the glossary of key terms at the end of the book.

Appendix 1 Weights and measures

In this book, quantities and measurements have been given in both metric and imperial. An exact conversion does not usually give convenient working amounts, so we have rounded off the metric measures into units of 25 grams. Do not mix metric and imperial in the same recipe.

The tables below show the recommended equivalents between metric, imperial and American/Canadian (not British) standard measuring cups and spoons.

Weights and equivalent measures

METRIC	IMPERIAL	CUPS OF FAT	CUPS OF FLOUR	CUPS/SPOONS OF SUGAR
1 kg	36 oz (2 lb 4oz)			
560 g				$2\frac{1}{4}$ cups (brown)
500 g	18 oz (1 lb 2 oz)			2 cups (granulated)
450 g	16 oz (1 lb)	2 cups		

As before, there are appendices at the end of the books. New appendices in this edition include: types of glassware, fashion silhouettes and recommended dietary allowances.

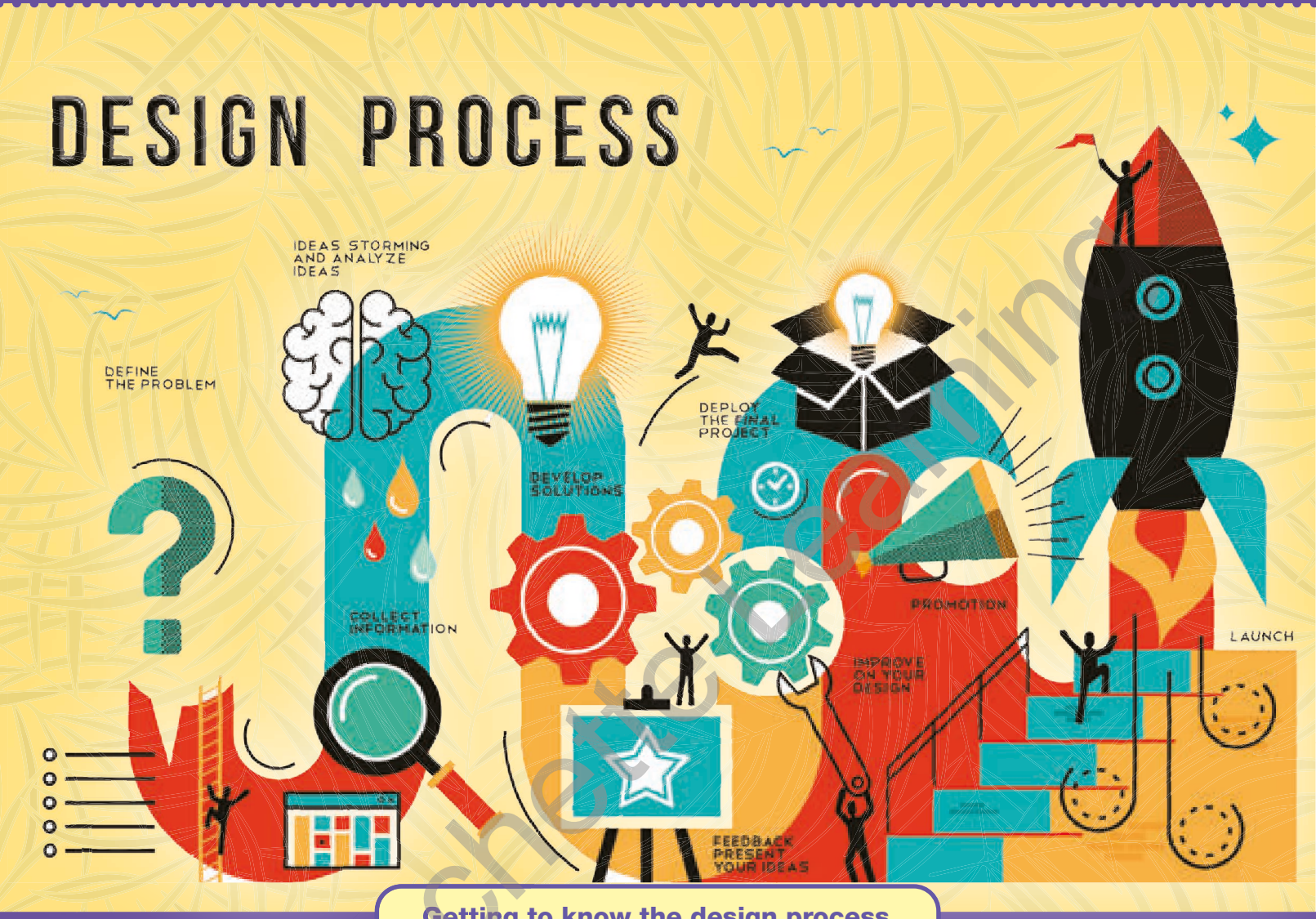
I would like to emphasise that it remains the objective of the Caribbean Association of Home Economists that these books be useful for the classroom, for the student teacher, and for home reference.

As always, we welcome comments from users of these books.

Antonia Coward

Series Editor

Section 1 Revisiting the design process



Getting to know the design process

In Book 1, you learnt that the design process is a useful approach to breaking down a problem or challenge so that a solution can be found. You were able to use the steps of the process to find and test possible solutions to problems before selecting the best one.

In this section, you will revisit the design process and take a more independent approach to its application in the search for an ideal solution to the **Do it yourself** scenario. You will be guided through some parts of the process but will have to work on your own or in a group for the other parts.

Revisiting the design process

Figure 1 Getting to know the design process

In this chapter, you will:

- review the stages in the design process
- explore in greater detail how to identify a problem
- develop a design brief for the problem identified
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- explore in greater detail how to select the best possible solution
- test and evaluate the solution
- present a report.

Reflect, research, report

The big question

Are you able to use the design process to solve/address the challenge faced by the woman in the picture below?

Breaking this down

1. What seems to be the problem?
2. Which design process steps would you take to address this problem?
3. Can you think of a new idea to address or solve the challenge identified?
4. Can you provide some possible alternatives to come to a solution?
5. How would you identify the best possible solution?
6. How can you help the woman to solve similar problems in the future?
7. What did you do to help the woman make the right decision?

Sharing the information

Think of an effective way to share your conclusions with your classmates. You could draw a comic strip or a schematic diagram or make a video using a social media format. What other entertaining and informative ways can you use to share the information about the design process with your class?

Answering the big question

Having done the research and listened to the information from your classmates:

1. Do you think that you can use the design process to solve the problem?
2. What are some of your thoughts/ideas about solving problems/challenges related to family members?
3. How would you choose the best solution for a problem?

Problem-solving tips

Think about the pros and cons of the solutions identified. This will guide your selection.

Applying the design process

Do you remember the steps in the design process? Remember it is a sequence of activities, which help you to break down a problem and find a workable solution.

Stages in the design process

Figure 2 shows the main steps in the design process.

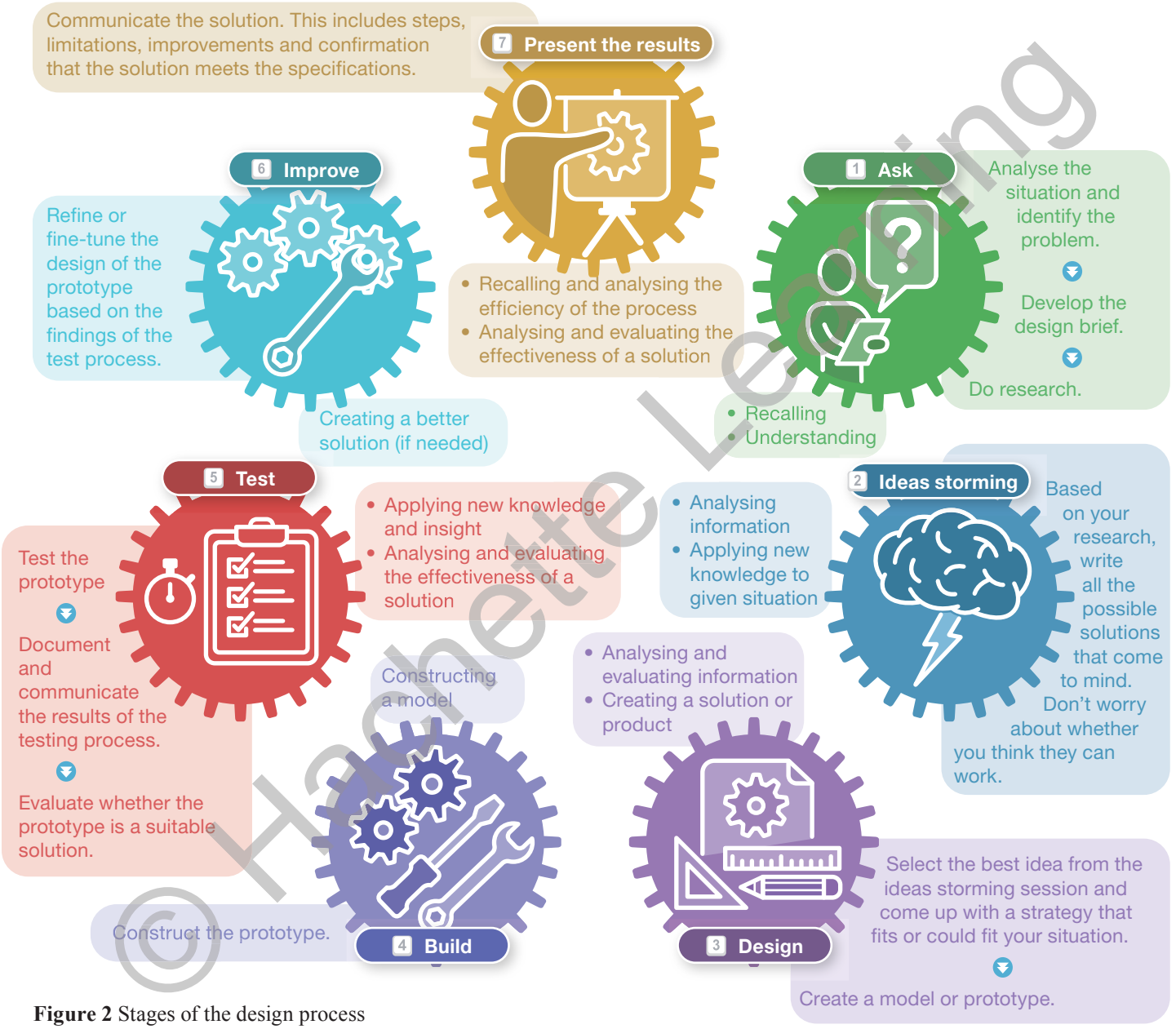


Figure 2 Stages of the design process

Did you know?

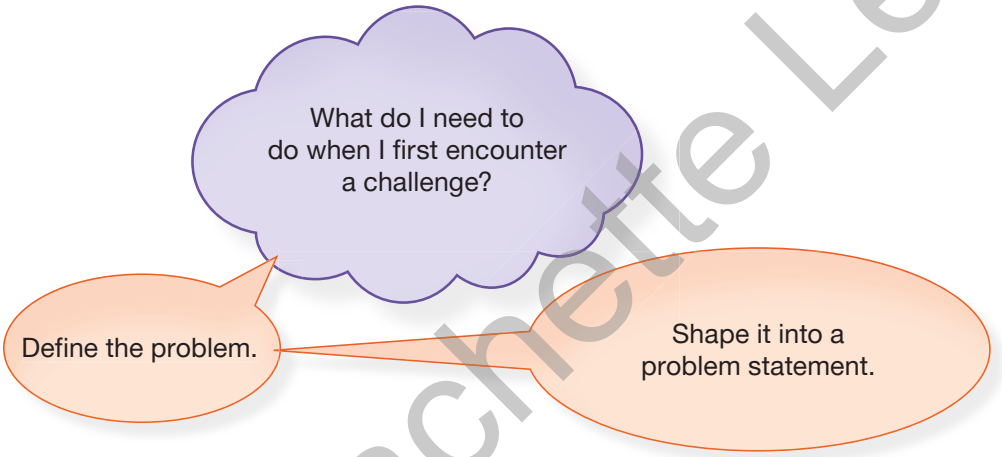
The design process is also considered an approach to learning.

The design process is a way of thinking, learning, collaborating, and problem-solving. In practice, the design process is a structured framework for identifying challenges, gathering information, coming up with potential solutions, refining ideas, and testing solutions. The design process encourages the development of inquiry skills, divergent thinking and reflection. It also promotes empathy, curiosity, creativity, innovation and constructiveness.

Figure 3 Design process thinking

STEP 1: IDENTIFYING THE PROBLEM

Figure 4 Defining the problem



The **defining** stage ensures that you completely understand the goal of your project. It helps you to communicate your design problem and provides a clear objective to work towards. It also helps you to develop a meaningful, actionable problem statement that will guide you in the right direction while helping you to conceptualise and work your way towards a solution.

Consider this

Without a well-defined problem statement, it is hard to know what you are aiming for. Your work will lack focus, and the final design may not solve the problem as intended. Additionally, without a clear problem statement, it is extremely difficult to explain to your teachers and classmates exactly what you are trying to achieve.

Look at the picture below and share what it means to you with your classmates.

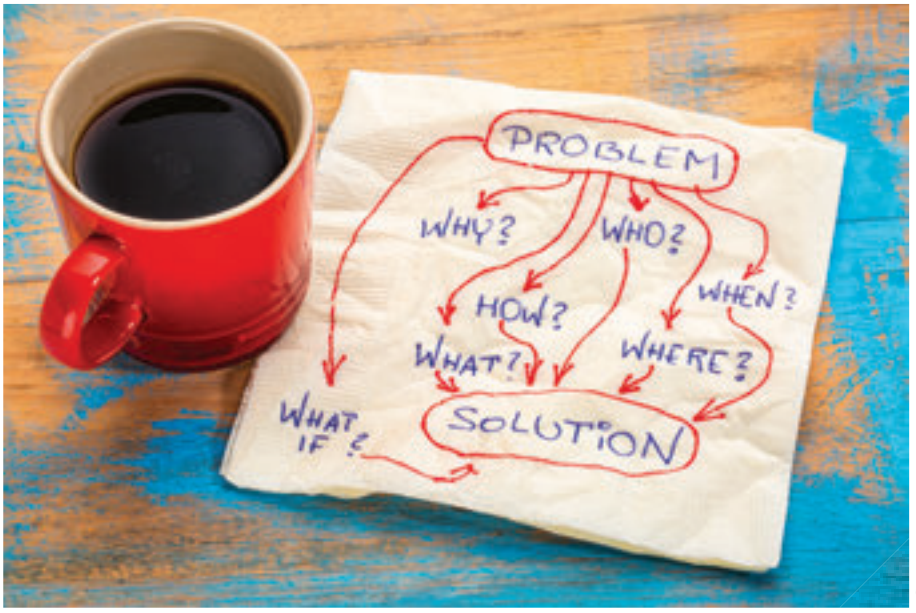


Figure 5 Question starters

- A problem statement identifies the gap between the problem and the goal of a process or product. Think of the user's problem as an unmet need. By designing a solution that meets this need, you can satisfy the user and ensure a pleasant user experience.
- A problem statement breaks down a problem so that it can be worked on by the designers. It should provide a clear description of the issue that the designer seeks to address, so that the solution is meaningful for the user.

Writing better problem statements

Problem statements can take various formats, but the end goal should be the same. Remember that your problem statement should identify the problem, mention the special conditions related to the problem if there are any and indicate what the solution should accomplish.

- From the user's perspective: As a young working professional who is trying to eat healthily, I am struggling because I work long hours and do not always have time to go grocery shopping and prepare my meals. This makes me feel frustrated and bad about myself. I need to find an efficient way to get healthy meals.
- From a user research perspective: Busy working professionals need an easy, time-efficient way to eat healthily because they often work long hours and do not have time to shop and prepare meals.
- Based on the four W's – who, what, where, and why: Young working professional struggles to eat healthily during the week because she is working long hours. Our solution should deliver a quick and easy way for her to buy ingredients and prepare healthy meals that she can take to work.

Each of the statements above addresses the same issue; however, it is done in a slightly different way. The most important thing is to focus on the users, what they need and why. Then, it is up to you how you choose to design your solution to the problem.

Problem-solving tips

The following pointers will help you to create a meaningful problem statement.

- **Be user-centric:** The user and their needs should be central to your problem statement. Avoid statements that start with 'we need to …' or 'the product should …' instead, concentrate on the user's perspective: 'Young working professionals need …' as in the examples on the previous page.
- **Keep it open:** Avoid suggesting definite solutions; instead, there should be opportunities for a solution that is innovative and creative.
- **Make it achievable:** Your problem statement should be a guide. The user's needs and goals should be specific, so that the designer does not struggle to find a suitable solution. Do not focus on multiple users' needs in one problem statement.

Do it yourself

Identify a problem in your community. In your notebooks, write your problem statements using the three different ways.

Researching solutions

After outlining the problem and stating the requirements of the ideal solutions, the next action is to conduct **research**. This will not only help to provide a better understanding of the problem but it will also expose you to potential solutions. Research may include reading articles in journals, magazines, books or on the internet to spark ideas and to consider the limitations of the possible solutions.

Research can include looking at existing designs and questioning their strengths and weaknesses.

Research is also where crucial elements of a design or solution become clear.

Doing research leads to thinking about the parts of the problem that must be addressed so that there is a meaningful solution.

Did you know?

You can identify the limits to your possible solutions and eliminate the ones that are impossible, inefficient or costly, by answering the question: *What are the limitations of this design or solution?*

Do it yourself

1 In a small group, select one of the problem statements you wrote about a challenge faced by your community and develop a research approach to find:
   - **a** situations where there are similar challenges
   - **b** solutions designed to address the challenges in those situations
   - **c** the limitations of those solutions.

2 After you have conducted the research, as a group discuss the usefulness of the research and what you would do differently the next time. For example, could your group gather useful information by doing surveys or interviews?

Write a specification

After defining the problem, writing the problem statement and conducting research, the next step is to write the **specification**. The specification helps to shape the ideal solution by listing six to eight of the features required. You should also include limitations to ensure that they are always considered as you move through the process.

Do it yourself

1 In your notebook, write the specification for the challenge that you have identified in your community. These are some of the ways you can state the items on your specification:
   - The method/solution must be …
   - The solution should use …
   - Implementing the solution should be/should not be …

2 In your group, discuss what you think is likely to happen if you do not create the specification.

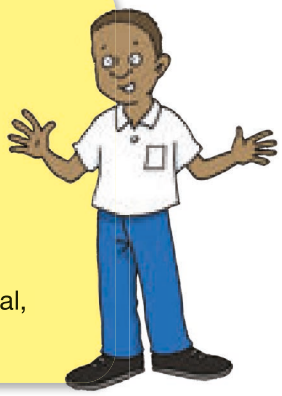
STEP 2: IDEAS STORMING

Once the problem has been identified and understood, the next stage of the design process involves **ideas storming**, which is a free-flow of ideas ranging from the improbable or impossible to the practical or efficient. Ideas storming is a brilliant way of allowing ideas to evolve from research and engaging with other people.

Figure 6 Ideas storming

Ideas storming best practices:

- ✓ focus on one problem/challenge at a time
- ✓ listen to input from team members or from the user
- ✓ document all the ideas suggested
- ✓ eliminate the ideas that just cannot work
- ✓ refine or build on the remaining ideas until you get to the limitations that cannot be resolved
- ✓ identify the solutions that seem feasible for the user – practical, cost-effective or innovative.



Do it yourself

1. In your group, do some ideas storming that could be implemented to resolve the challenge identified in your community.
2. After the ideas storming activity, take a moment to discuss the parts of the activity that were the most useful and what could be done differently the next time.

STEP 3: DESIGN

Selecting the best solution

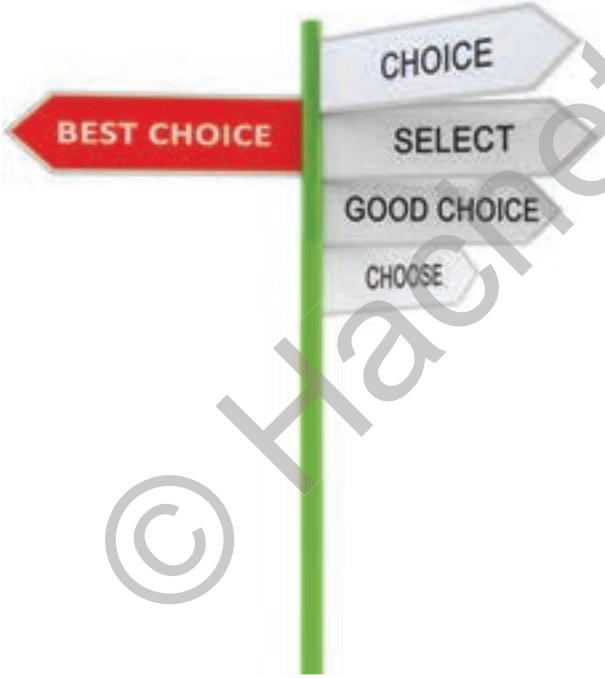


Figure 7 Selecting the best solution

In Book 1, you learnt that you can use a pros and cons list to help you select the ideal solution. If that list does not help to select the best solution, you can use a selection matrix from the internet to make a final decision.

How do I select the best solution to design and implement when I have so many that are feasible?

Problem-solving tips

When selecting your solution, consider:

- Will the solution be beneficial to the user?
- Is it the most affordable solution?
- Is it sustainable or user-friendly?

Once the most feasible solution has been selected, it is time to draft a **design** for it. The design phase is where the useful information gathered is merged with the requirements of the desired outcome to create a suitable solution for the user. Depending on the problem, your design can range from a drawing of a physical product to the outline of a programme.

Do it yourself

1 Select the best solution for the challenge you identified in your community and state the reasons for that selection.

2 Design the solution.

Did you know?

Having as much information as possible about each possible solution and keeping the problem or task in mind is helpful for choosing a successful design.
The chosen design should represent the solution that you think best meets the need or solves the problem that was identified at the beginning of the design process.

STEP 4: DEVELOP A PROTOTYPE AND TEST THE SOLUTION

A **prototype** is the first working model of the solution.

It must be tested to make sure that it is functional and can address the problem in all the ways required.

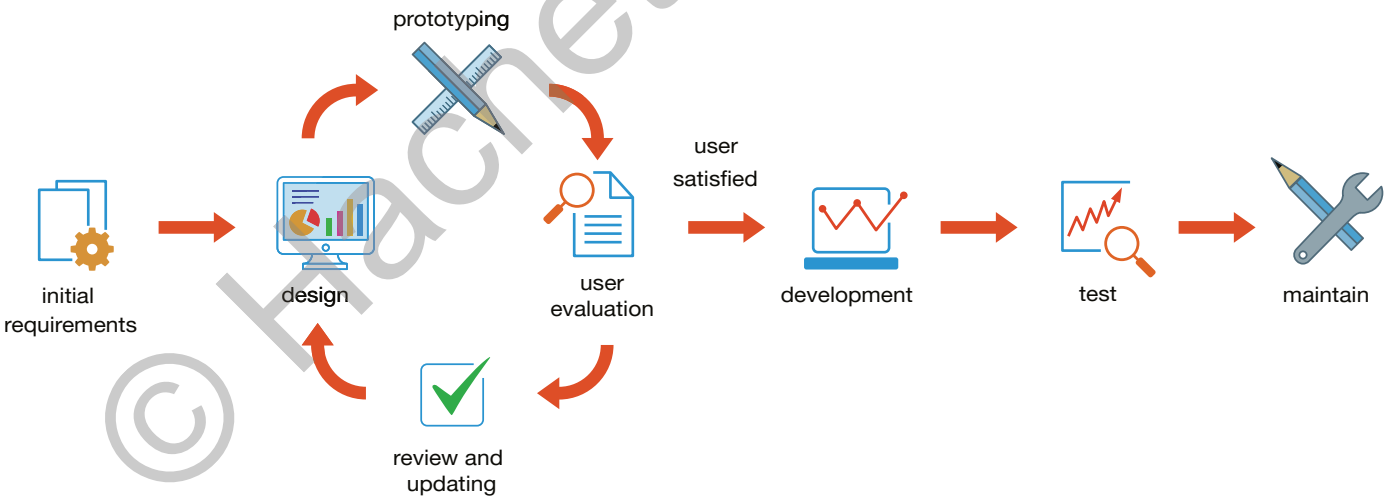


Figure 8 Prototype model

Do it yourself

In your group, create a prototype (or a sketch of it) for the solution selected to address the challenge in your community.

STEP 5: TEST THE PROTOTYPE

This next stage entails testing the prototype against the specifications. This is your opportunity to make modifications to the design if it does not meet the specifications. If modifications that will improve the product cannot be made, it will mean looking for another solution.

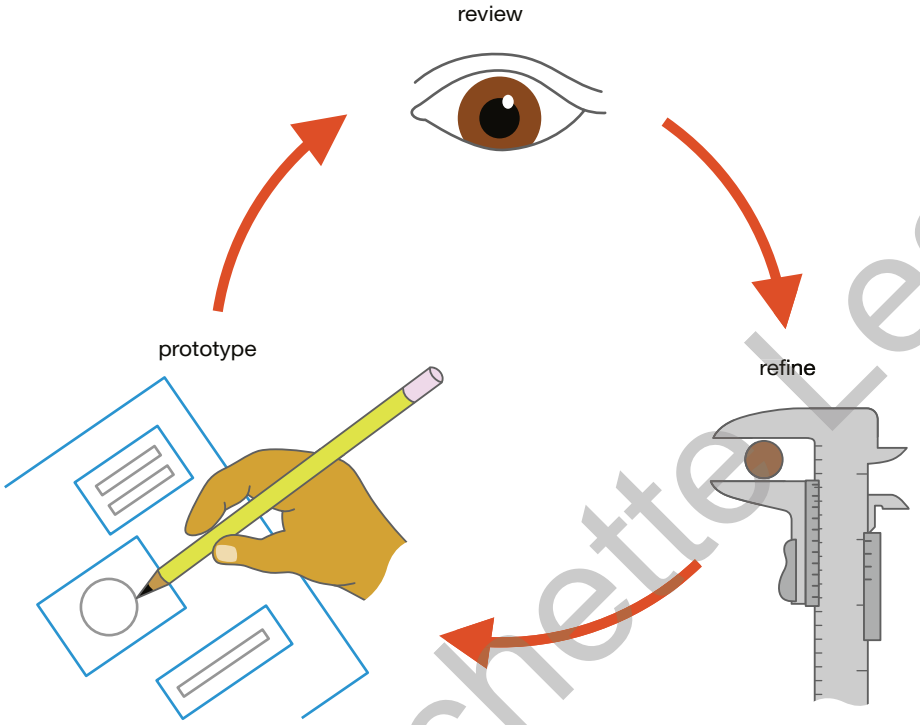


Figure 9 Prototype testing

Did you know?

The step of testing the prototype with potential users is referred to as product research. This is where you will gather feedback from your target audience or consumer on what works and what does not. This is how you identify the issues and make sure that your design is a viable solution.

Some of the steps that you need to take when testing your prototype, are answering all those important questions when you identified the problem. So, make sure that you answer the four Ws:

- WHO – ask the right people to find out if your product works and is a solution
- WHAT – ask the right questions so that you can get feedback regarding solving the problem
- WHERE – find out where this solution will work best
- WHY – remember to ask the correct questions and make a list so that you get all the necessary answers; follow up with more questions until you are satisfied that you have all the necessary information.

Do it yourself

1. Ask other groups in your class to test the prototype you designed to address the challenge in your community. Provide a feedback form that allows them to state what worked for them, as well as the flaws that need to be fixed in the design.
2. Use the feedback form to decide whether your design is viable. Can it be fixed with a simple tweak or do you need to start over again?

Problem-solving tips

The prototype must be tested against the specification each time it is tweaked because other issues that impair functionality can pop up with each adjustment. It is best to identify and correct such issues before implementation.

STEP 6: IMPROVE THE PROTOTYPE/EVALUATE THE SOLUTION

This step is about improving your prototype and may not be necessary for every project. It really depends on the results you receive from testing the prototype. If the reviews you received indicate that improvements are required, you need to look at the responses and determine exactly what needs to be corrected or changed. Also keep in mind that the product must be retested each time changes are made.

Figure 10 Improving the prototype

A final evaluation of the product or model is your evidence that the project does the job that it has been designed for. In other words, it solves or addresses the problem.

Do it yourself

1 In your group, answer the following questions honestly:
- Does the design meet the needs of the user?
- Is the solution simple and easy for the user to implement?
- Is the solution safe to use?

2 Discuss in your groups why it is necessary to perform this quality control exercise after getting satisfactory feedback on the final adjustments to the prototype.

STEP 7: PRESENT THE RESULTS

This is the final step in the design process. Here is your opportunity to provide evidence of the work you have done. You will communicate the solution to your target group. This will include the steps you took in: identifying the problem, planning and designing the model, carrying out any practical construction work and evaluating the model or design. The final steps included communicating the limitations, improvements, and providing confirmation that the solution meets the specifications identified by displaying the solution that was developed and tested.

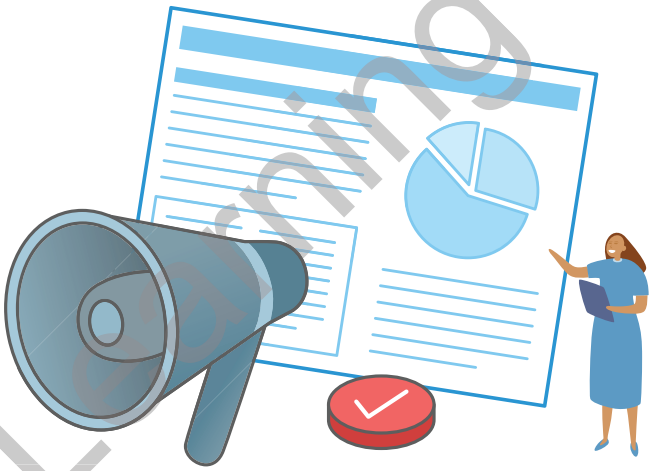


Figure 11 Presenting results

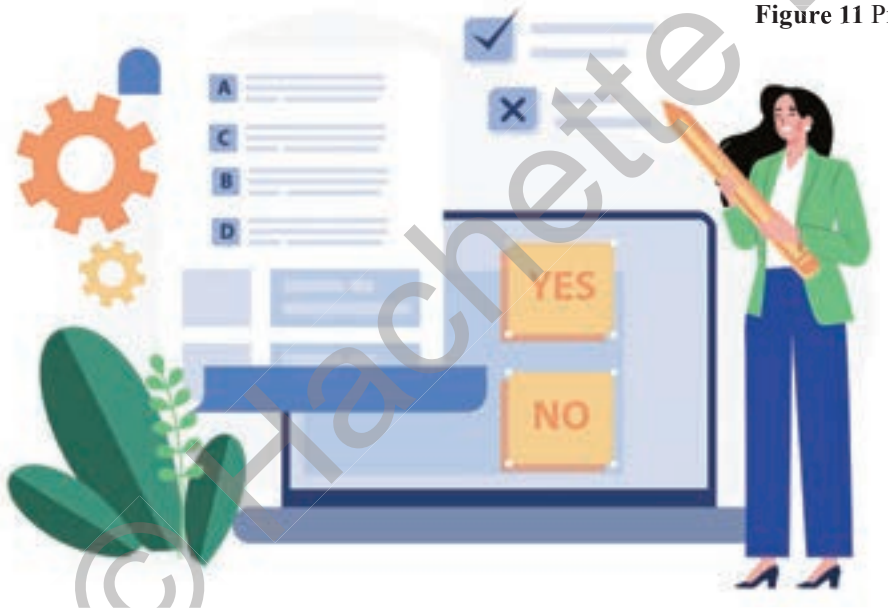


Figure 12 Communicating the results

Do it yourself

In your group, create a report for the solution you designed to address the challenge in your community, and share it with the rest of your class.

Problem-solving tips

You can be as creative as you want with a report. You can make a brochure that documents the process, limitations and shows the final solution. Your report could be a schematic chart or a documentary. The important thing is to ensure that the ideas that you want to share are clearly presented.

Caribbean Home Economics in Action

BOOK 2

Provide a solid foundation for the study of Home Economics at CSEC® level and for CVQ certification using a project-based approach with the only resource written by the Caribbean Association of Home Economists.

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Caribbean Association of Home Economists

All of the authors and contributors to this course are members of the prestigious Caribbean Association of Home Economists. Throughout the development of the series, they have consulted with Home Economics teachers, educators and curriculum officers from across the region.

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