C2

Design First

CHAPTER ASSIGNMENT · 19 MARKS

Name _____ Class _____ No. _____ Date _____

> Answer every question in the space given. Show your working. You may use the chapter page to help you.

Review, Think and activity questions from *Basic Science and Technology Textbook: Technology (Design and Technology), Mathayom 2* (หนังสือเรียนรายวิชาพื้นฐานวิทยาศาสตร์และเทคโนโลยี เทคโนโลยี (การออกแบบและเทคโนโลยี) ชั้นมัธยมศึกษาปีที่ ๒), Institute for the Promotion of Teaching Science and Technology (IPST, สสวท.), translated into English, for classroom use. The book has no exercise list, so the Check yourself and Chapter quiz questions are Guru Jazzy's own.

Review before the lesson (ทบทวนความรู้ก่อนเรียน)

Think (ชวนคิด) To design a product or a method, what do you need to know first?

Activities from the chapter

2.1 **Analyse and choose an approach.** Analyse the technological resources needed for each approach you found in Activity 1.4, then choose one.

(a) The problem is:

(b) Fill in the table. Write "–" where a resource is not needed.

Resource	Approach 1	Approach 2	Approach 3
People			
Data and information			
Materials			
Tools and equipment			
Energy			
Capital			
Time			

(c) The approach we chose, and why:

2.2 **Design the product or method.** Create as many design alternatives as you can. Sketch them (for a product) or draw a diagram or flowchart (for a method). Explain the key points of each.

(a) Which alternative did you choose? Give your reasons, using the design principles.

2.3 **Build a model.** Build a model of the design from Activity 2.2 to study its shape or test how it works.

(a) Is it a shape model or a working model? What materials did you use?

(b) What did you learn from the model? What will you change before building the real thing?

End-of-chapter activity (กิจกรรมท้ายบท)

Activity Each group presents its design with its sketches and models. Write down the suggestions you received.

Check yourself

1 Name the seven technological resources. [7]

2 Name four of the eight product design principles and give a one-line example of each. [4]

3 Draw a flowchart for getting from home to school. Include one decision (for example, “Is the traffic jammed?”). [4]

4 Non's lever is 100 cm long and the plate is 25 cm from the pivot. If he pushes with 30 N, what force presses the rubbish? Show your working. [2]

5 What is the difference between a shape model and a working model? [2]

Chapter quiz

Q1 How many kinds of technological resource does the book list?

A. 3 B. 5 C. 7 D. 9

Q2 Which design principle is the most important?

A. Aesthetics B. Function C. Cost D. Maintenance

Q3 A chair that is the wrong height for sitting a long time breaks which design principle?

A. Ergonomics B. Structure C. Cost D. Material and process

Q4 Which 3D drawing shows both sides at 30° to the horizontal?

A. Oblique B. Isometric C. Perspective D. 2D drawing

Q5 Which is the best way to show the steps of a method, such as going from home to school?

A. A 3D sketch B. A flowchart C. A shape model D. A photo

Q6 Non's lever compressor: lever 100 cm, plate 25 cm from the pivot. The rubbish gets how many times your force?

A. 2 times B. 4 times C. 25 times D. 100 times

Q7 Non built a model from card and bamboo sticks to test whether the bin clamp works. What kind of model is it?

A. Shape model B. Working model C. Computer model D. Test (crash) model

Q8 Why did Namwan choose "measures for shops and students" over the recycling bank?

A	B	C	D
It was the most expensive	It needed the most people	It cost less, took less time and cut plastic directly	It needed a building

End of assignment · Check your answers against the chapter at gurujazzy.com/subjects/it/sem-1/chapter-2-design-first/