

# Selecting resources

## Objectives

By the end of this session teachers will:

- have developed criteria for evaluating textbooks;
- have matched specific objectives to units and pages in selected textbooks and vice versa;
- have begun to consider objectives for which no materials exist.

## Resources

### For the trainer

- Computer with data projector, Microsoft PowerPoint and Presentation 13.ppt
- Whiteboard or flipchart
- Spare copies of the evaluation form for Day 4
- A selection of textbooks for teaching mathematics (optional)
- *Curriculum Standards for mathematics: Grades K to 12*

### For each teacher

- *Teacher's pack*  
Handout 13.1  
Handout 13.2 (to be given out at the relevant point of the session)  
Evaluation form for Day 4
- *Curriculum Standards for mathematics: Grades K to 12*

### For each school group

- Mathematics textbooks (brought by teachers)

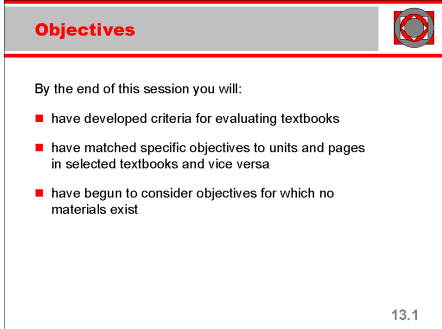
## Session outline

<b>Introduction</b> Slides 13.1–13.4	Whole group presentation and discussion	10 minutes
<b>Developing criteria for evaluation</b> Handout 13.1 Slides 13.5–13.10	Group work Task 1: Creating criteria	35 minutes
<b>Matching existing texts to the standards</b>	Task 2: Matching existing books to the standards Task 3 (optional): Using equipment Task 4 (optional): Reasoning and problem solving	25 minutes
<b>Conclusion</b> Slide 13.11 Handout 13.2	Summary	10 minutes

## Introduction

10 minutes

Show **slide 13.1** to introduce the objectives for this session.



Slide 13.1: Objectives

By the end of this session you will:

- have developed criteria for evaluating textbooks
- have matched specific objectives to units and pages in selected textbooks and vice versa
- have begun to consider objectives for which no materials exist

13.1

Before the session starts, brief any interpreter about the key points of the session.

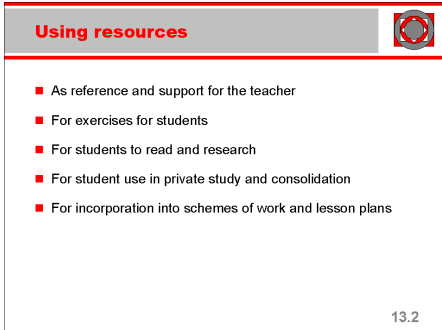
Load **Presentation 13.ppt**.

Tell everyone that the session will include:

- developing criteria for choosing resources;
- applying the criteria to existing textbooks to match texts to standards;
- developing criteria for acquiring or creating new resources.

Ask the question: *Why do schools need resources to support the teaching and learning of mathematics?*

Give teachers a few minutes to discuss this question in pairs, then take feedback. Draw out as many good reasons as possible and summarise them using **slide 13.2**.



Slide 13.2: Using resources

- As reference and support for the teacher
- For exercises for students
- For students to read and research
- For student use in private study and consolidation
- For incorporation into schemes of work and lesson plans

13.2

Ask the question: *What do schools first do when they decide that they need new mathematics resources such as a textbook scheme?*

Once again, give teachers 2 minutes to discuss this question in pairs, then take feedback. Draw out possible starting points, such as:

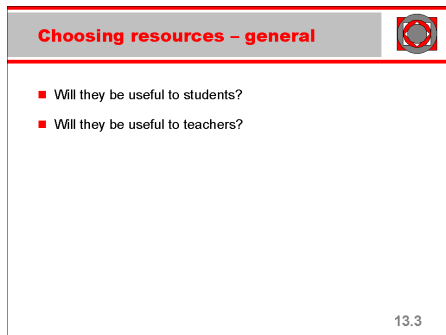
- look at book reviews in educational journals and professional association magazines;
- look at the websites and catalogues of a few well-known educational publishers;
- go to a book fair;
- ask a publisher's representative to visit the school;
- send for some sample materials on approval.

Explain that these steps take them to the stage of studying the books in detail and making a decision about whether or not to buy them.

## Developing criteria for evaluation

35 minutes

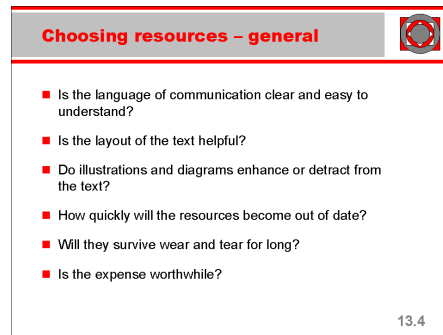
Say that when teachers first look at a textbook scheme, they tend to ask themselves questions such as the following. Show **slides 13.3 and 13.4**.



**Choosing resources – general**

- Will they be useful to students?
- Will they be useful to teachers?

13.3



**Choosing resources – general**

- Is the language of communication clear and easy to understand?
- Is the layout of the text helpful?
- Do illustrations and diagrams enhance or detract from the text?
- How quickly will the resources become out of date?
- Will they survive wear and tear for long?
- Is the expense worthwhile?

13.4

Discuss each bullet on slide 13.4. Intersperse questions such as: ‘Do you agree?’ and ‘Was this something that you took into account when you chose your current books?’ Ask if anyone would like to add anything of a general nature to this list.

### Task 1: Creating criteria

Explain that the criteria that have been considered so far are either very general (as on slide 13.3) or very practical (as on slide 14.4). In some ways, these criteria would be better if they were considered at the end of the process, rather than at the beginning. The most important issues to consider are the relationship of the books to the standards and the type of support that the books will give to students and teachers.

Refer everyone to **Handout 13.1** from their *Teachers’ pack*.

Ask teachers to work in groups of four to develop criteria for evaluating textbook schemes. They should consider three groups of criteria:

- for evaluating the subject content in relation to the standards;
- for the support that the textbooks give to the teacher;
- for the support that the textbooks give to the student.

Say that the groups have about 15 minutes to develop some evaluation criteria under each heading. Each group of four should select one person to coordinate the writing of criteria and another to present the group’s findings later in the session.

After 15 minutes, bring all groups together to share their criteria. First take feedback on content, then summarise using **slides 13.5 and 13.6**. Suggest to the groups that they add to or amend their criteria on Handout 13.1 as they hear suggestions from other groups or on the slides.

Aim to form groups that include teachers from different schools.

**Criteria – content**

- Is the content well-matched to the mathematics standards? Are all the key standards covered?
- Are there ICT activities?
- Are the contexts suitable for use in Qatar?

13.5

**Criteria – content**

- Is there the equivalent of a grade-by-grade progression to provide an overview?
- Is the progression sensible? Does it link to the progression in the standards? Are there opportunities to revisit topics?
- Is the pace of progression appropriate? Is the degree of challenge appropriate for all students?

13.6

Next, take feedback on support for the teachers. Summarise with slides **13.7 and 13.8.**

**Criteria – support for the teacher**

- Are there teachers' books to supplement books for students?
- Will the books help teachers to:
  - develop students' mathematical awareness and ability to reason and solve problems?
  - make connections within mathematics and with other subjects?
- Are there references to other resources, including other published materials, software and Internet sites?

13.7

**Criteria – support for the teacher**

- Are there sections on pedagogy and classroom organisation? On differentiation at work in the classroom?
- Are there detailed worked answers, including pictures of graphs and relevant charts or diagrams?

13.8

Then take feedback on support for students. Summarise with slides **13.9 and 13.10.**

**Criteria – support for the student**

- Will students find the books stimulating, understandable and accurate?
- Do illustrations and diagrams enhance the learning of mathematics or are they merely decorative?
- Do the exercises provide a sufficient range of example types and at appropriate levels of difficulty to meet the needs of all students?
- Are there activities with ICT and graphics calculators?
- Is there a range of word problems?
- For older students, are there substantial problems set in realistic contexts, using real data?

13.9

**Criteria – support for the student**

- Are homework tasks suggested?
- Will students be able to use the book for personal study?
- Are there assessment tasks to help students to know how they are progressing?
- Are there hints and model solutions to exercises and assessments?
- Is there a glossary of technical terms?

13.10

Say that the task of considering criteria to use when choosing a new set of textbooks for mathematics has shown that the exercise is a complex one. It should not be undertaken in a hurry. Detailed study and analysis of the contents from teachers' and students' perspectives is needed.

## Matching existing texts to the standards

**25 minutes**

Tell everyone that the next activity requires them to use the textbooks they have brought along and the criteria that they have developed.

If schools have forgotten their textbooks, refer them to the selection of books that you have provided.

### Task 2: Matching existing books to the standards

Ask teachers to work in the same groups (or in small groups determined by the familiarity of the resources available at the session). The groups should use the criteria that they have developed to help them to decide whether the textbooks are likely to provide a useful match to the relevant standards.

If the criteria developed so far prove inadequate, ask groups to refine the criteria further. Advise groups to focus initially on the books for one grade and to determine the degree of match of the content to the standards.

After about 15 minutes bring the groups together to share their experiences, to make general observations and to comment on any difficulties they encountered doing the task.

### **Task 3 (optional): Using equipment**

Say that the standards often require or suggest the use of equipment or models to support learning. For example:

- in the earlier grades, students will use number lines, an abacus or place value cards to help them to understand place value and number operations;
- in the later grades, students will use spreadsheets, graphics calculators and other physical equipment to investigate mathematical concepts.

A thorough evaluation of a textbook scheme will include a detailed look at this aspect and the use of equipment and other practical resources.

If time allows, invite teachers, still in the same groups, to consider to what extent the textbooks meet these needs, both in activities for students and in advice for teachers on the resources needed and how to use them effectively. Allow 5 minutes.

### **Task 4 (optional): Reasoning and problem solving**

Say that the standards also require reasoning and problem solving to be integrated throughout, including the use of realistic applications of mathematics.

If time allows, ask teachers, still in the same groups, to consider the extent to which the textbooks succeed in doing this. They should decide whether the problems and applications have an appropriate degree of challenge for the age group, whether they are interesting and whether they stimulate further interest in the subject. Allow 5 minutes.

## **Conclusion**

**5 minutes**

Say that no matter how good a textbook scheme is, it will not match the standards in entirety. For example, the textbooks:

- may not cover all the relevant standards;
- may cover the standards but not sufficiently thoroughly;
- may not approach a topic in the way that teachers would choose.

Show **slide 13.11**. Talk through the process of supplementing resources by buying or developing new materials.

## Supplementing resources



- Identify gaps in provision
- Find other relevant resource material to fill these gaps

### AND/OR

- With colleagues, establish criteria for the production of relevant materials
- With colleagues, produce these materials
- Share the experience and the perceived difficulties
- Incorporate all relevant resources into lesson plans
- Modify resources with use

13.11

Finish by saying that the best teaching based on the standards is likely to draw on teaching and learning materials from a range of different sources: textbooks from different publishers, materials downloaded from websites, computer software, materials designed by local groups of teachers, and so on. Materials that already exist in schools will also have their place.

Say that textbook evaluation is not easy and has to be done thoroughly to be effective. It is best to start by using the Internet, studying publishers' catalogues and attending publishers' events to get information about different books but without any commitment to buying any of them at this stage. There is a lot to think about before decisions are made.

Give out **Handout 13.2**. Explain that this can act as a checklist when schools are acquiring new resources. Draw attention to the headings of the various sections.

Thank everyone for their contributions. Remind everyone to bring their *Teacher's pack* to the final day of the workshop.

Invite them to complete the evaluation form for the fourth day and to give it to you before leaving.