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About higher-order thinking skills

Teachers report that their curricula are lacking in materials that help pupils learn to think critically. This book provides practice applying higher-order thinking skills in English, maths, science, humanities and social sciences contexts.

What are higher-order thinking skills?

They are not the skills—such as alphabetising or calculating a perimeter—used in specific academic subjects. Rather, they are skills used across all curriculum areas and in non-academic situations; the skills for making use of information.

In this book, higher-order thinking skills are represented by behavioural verbs. Each page focuses on one behavioural verb, which is defined at the top of the page. Each behavioural verb is emphasised in the instructions so pupils become aware of when and how they are using the thinking skill.

Why is it important to practise higher-order thinking skills?

Teachers may debate which is the most important curriculum area or skill in school, but some things are widely accepted by teachers and academics alike:

- Pupils need well-developed thinking skills to be successful in the classroom, on assessments and in the real world.
- Pupils can learn to think better if they're taught how to do so.
- Critical thinking skills are more important than ever in today's competitive, rapidly changing, technology-based environment.

Young children naturally use thinking skills. They learn autonomy through exploration, observe their environment using logic and reasoning, try new things and think creatively. As children grow and enter an academic setting, some of their natural curiosity and problem-solving instincts are not engaged as often as they could be.

While all thinking skills are important, pupils generally get ample practice with recall, recognition, identification and comprehension. Therefore, this book focuses on thinking skills that are more challenging to incorporate. These include analysing, predicting, modelling, composing, organising, evaluating options, designing, critiquing and problem-solving.

People with strong critical thinking skills can accomplish a great deal, whether or not they have background knowledge in a topic. Critical thinkers know how to acquire new knowledge and how to approach problem-solving. They also know how to persevere and use productive struggle to find an answer.

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Ten tips for tackling tough tasks

Before beginning these lessons, read the paragraph below to pupils, then share the tip that best supports each daily activity.

These activities are not supposed to be things you've already learned how to do in class. These activities let you exercise your brain in new ways. Most of the activities don't have just one right answer, so don't worry; just answer in a way that makes sense to you.

1. **Unpack the task:** Read the activity once to see what it's about. Then re-read it very carefully. Ask yourself: What am I being asked to do? Solve a problem? Complete a puzzle? Write a story? Explain my thinking? Describe something? Then look at the information given.

2. **Put yourself in the situation:** Spend a few minutes imagining that you are in the situation described. How does it feel? Why is it important? Is this situation like one you have been in before?

3. **Look for details:** If an activity has a picture or a map, look at it closely. Look at everything, work out what people are doing, and read any words. Think about which details might be the most important for what you have to do.

4. **Think about what you already know:** You already know a lot! If you're not sure how to begin, think about the topic or the objects you see on the page. Think about when you've seen or used something. Think about when you learned or talked about something.

5. **Think about what the activity is like:** Sometimes when you learn to do one thing, you can do the same thing in a similar situation. Ask yourself: Have I done something like this before?

6. **Share ideas:** If you can work with a partner or a group, talk about your ideas or where you are getting stuck. Sometimes different people have different parts of the answer. When you tell what you know, you can all succeed.

7. **Use trial and error:** If you can't get started, write down anything. Then compare it to what the activity asks for. Does it make sense or follow the activity's instructions? If not, why not? Then start to change your answer, little by little, so it does follow the instructions.

8. **Work backwards:** Sometimes it makes sense to start at the end. Work out where you want to end up. Then think about what your problem looks like just before that. What needs to happen to get from there to the end?

9. **Check your answers as you go:** After you write or draw your answer, re-read the question you are answering or the instructions you are following. Does your response answer the question? Does it make sense? Does it follow the rules given? Does it solve the problem? If not, work out what part could be better and fix it.

10. **Keep trying:** Sometimes it takes a while for a new idea to come. Don't give up if you can't do an activity right away. When you work it out, you'll feel great!

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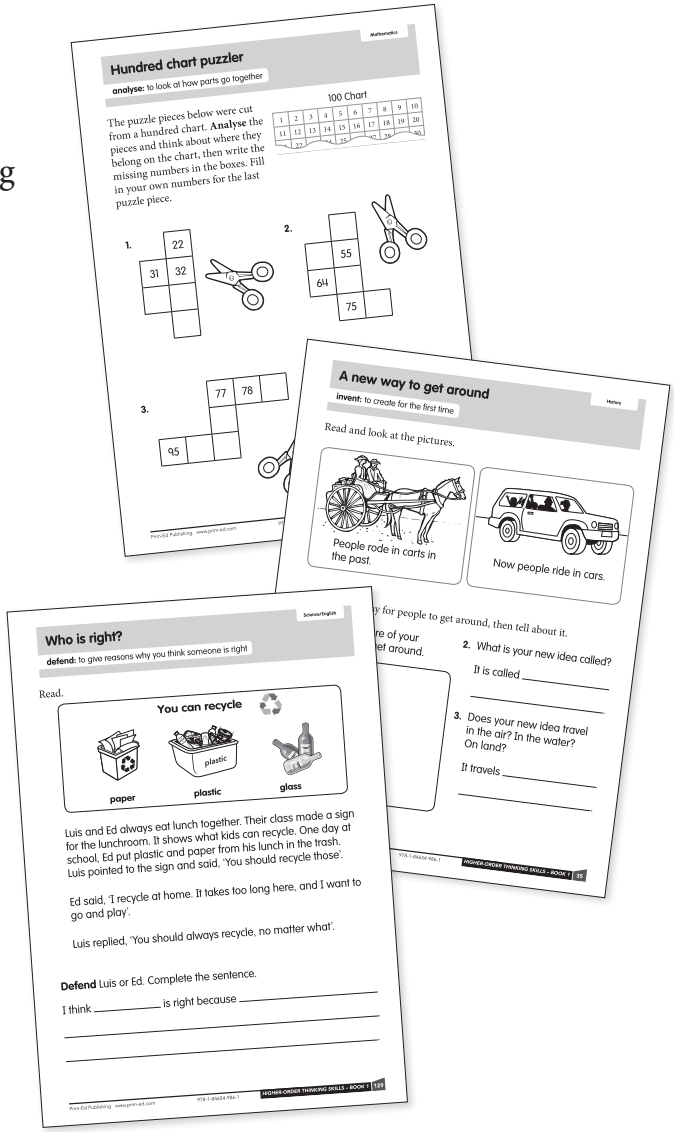
What's inside?

A variety of challenges



Curriculum-area contexts

Each full-page activity gives pupils an opportunity to practise a higher-order thinking skill in the context of a different curriculum area. The curriculum area changes, rotating between English, maths, science, humanities and social sciences, and sometimes combining them with art or logic. Engaging formats include:

- logic and visual puzzles
- spatial brainteasers
- creative writing
- picture comparisons
- wordplay
- 'what if' questions

A behavioural verb representing a higher-order thinking skill is defined at the top of the page and highlighted in the instructions. Topic information is often provided on the page so that the pupil can go past recall and comprehension to focus on using the given higher-order thinking skill.

Behavioural verb definitions

The chart on pages xii and xiii lists the definition of each behavioural verb in the book. You may wish to reproduce these pages and distribute them to pupils.

Answers

Evaluate pupils' responses based on your own expectations and on what content pupils have encountered. Accept any reasonable response. Answers for the closed questions start on page 152.

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How to use this book

1. Reproduce the activities or distribute a pupil book to each pupil. The activities are organised to become more challenging as the year progresses.
2. Introduce the activity to the whole class, reading the definition provided and relating it to any recent work done in class.
3. Review the instructions and any information given to ensure pupils know what to do. It is recommended that pupils work with a partner or in a small group, although the activities do not require collaboration and may be completed independently by a capable pupil.
4. Many activities have multiple solutions or are open-ended. Allow sufficient time for sharing responses and discussing problem-solving approaches. Modelling a variety of ideas and strategies offers valuable learning benefits and encourages peer respect and cooperation.

Teaching tips

- Preview the page yourself before assigning it to the class. Most pages do not rely on specific prior academic knowledge, but you may wish to connect the activity to a prior classroom experience or lesson.
- Remind pupils that there are usually several ways to complete the activities, so they should not worry about finding 'the right answer'.
- Become familiar with the ten tips for tackling tough tasks on page iv. When you introduce each activity page, review with pupils any tip(s) that you think might be particularly useful for them on that particular task.
- Pupils may take some time to work out how to start; productive struggle is often part of the higher-order thinking process. If they are getting frustrated and the ten tips aren't helping, guide pupils with leading questions.
- Take the opportunity to call to pupils' attention any behavioural verbs used in other academic lessons to reinforce pupils' understanding and awareness of when they are using these skills.

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