

Reading for information



Teacher Education
through School-based
Support in India
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TESS-India (Teacher Education through School-based Support) aims to improve the classroom practices of elementary and secondary teachers in India through the provision of Open Educational Resources (OERs) to support teachers in developing student-centred, participatory approaches. The TESS-India OERs provide teachers with a companion to the school textbook. They offer activities for teachers to try out in their classrooms with their students, together with case studies showing how other teachers have taught the topic and linked resources to support teachers in developing their lesson plans and subject knowledge.

TESS-India OERs have been collaboratively written by Indian and international authors to address Indian curriculum and contexts and are available for online and print use (<http://www.tess-india.edu.in/>). The OERs are available in several versions, appropriate for each participating Indian state and users are invited to adapt and localise the OERs further to meet local needs and contexts.

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Video resources

Some of the activities in this unit are accompanied by the following icon: . This indicates that you will find it helpful to view the TESS-India video resources for the specified pedagogic theme.

The TESS-India video resources illustrate key pedagogic techniques in a range of classroom contexts in India. We hope they will inspire you to experiment with similar practices. They are intended to complement and enhance your experience of working through the text-based units, but are not integral to them should you be unable to access them.

TESS-India video resources may be viewed online or downloaded from the TESS-India website, <http://www.tess-india.edu.in/>. Alternatively, you may have access to these videos on a CD or memory card.

What this unit is about

In this unit you will explore ways of helping your students develop effective skills to read for information. By incorporating texts from a range of subject areas into your language and literacy classroom, you will support your students' active reading across all areas of the curriculum.

You will be introduced to a number of activities that are suitable for students from Class V upwards. These include an 'anticipation guide' to prepare students to read unfamiliar or challenging texts, a list of features that can support them in locating the key points in curriculum subject texts, and a table that can be used to distinguish the importance of the ideas in a passage. The unit also encourages you to monitor your students' progress and adjust your teaching accordingly.

Reading and understanding information is a key life skill that will make a significant difference to your students' success in school and beyond. Your role in teaching them a range of strategies to read different types of information-based texts is therefore vital, particularly if they have few opportunities to read outside school.

What you can learn in this unit

- How to plan activities that develop students' skills in reading for information.
- Ways of incorporating active reading strategies into subject lessons.
- How to monitor your students' progress in reading for information.

Why this approach is important

As students progress through school, they are required to read increasingly complex texts in all subject areas. The ability to understand and use the information they read is key to their success in learning. Successful students have a repertoire of reading strategies to draw upon and will know when to use them. These include, for example, anticipating the content before reading a text, focusing on picking out its key points, or stopping to reflect on the meaning of each section. Struggling students will need to be explicitly taught these strategies in order to become better readers and active learners.

1 Learning to read for information

When we read in real life, we usually read for a particular purpose and to find out information. We usually don't focus on individual words, but on the overall meaning of what is being communicated, or the particular details about something we want to find out. In Activity 1, you will think about some of the texts you encounter in your everyday life and how you extract the information you need from them.

Activity 1: Reading different types of information-based texts

Think about the information-based texts you have read during the last week. These might have included a newspaper, an online technical manual, a train timetable, a recipe, advertisements, road signs or your students' written homework. List at least four that you can recall and then answer the following questions:

- Why did you read the texts?
- Which texts did you simply skim to pick up the key points? Which did you have to read slowly or more than once?

- Did you have difficulty understanding some of what you read? If so, how did you work out the meaning?
- What do you know about what your students have read during the last week?

Different texts will make different demands on your reading skills. An official document or instruction manual may include unfamiliar technical terms or jargon. A newspaper article may refer to places and issues beyond your experience and understanding. Your students' homework might incorporate irregular spellings. Even proficient, fluent readers regularly face challenges of this kind.

People's backgrounds and prior experiences play an important role in helping them to make sense of what they read. If you are already knowledgeable about a local health campaign, for example, a leaflet about this would be immediately comprehensible to you. Without this background knowledge, you might only be able to guess at the meaning of the leaflet. Students are constantly developing their knowledge of the world around them. Their ability to interpret what they read will thus be developing at the same time.

2 Widening your students' reading repertoire

Students need to learn the reading strategies that different information-based texts require. They need opportunities to practise reading for information, and to talk about what they have read, in order to internalise the new language and concepts that they have encountered.

Case Study 1: Widening students' reading repertoires

Mr Gaurav is a Class VIII teacher in Faizabad. Here he describes how he attempts to widen his students' reading repertoire in class by reading information-based texts aloud to them.

I often read aloud to my students, but instead of a story or a poem, I sometimes choose a short article from the newspaper that I think they will find interesting. I think it is helpful for them to listen to different types of written texts. It also informs them about the world we live in.

Last month, I began by introducing the topic of cosmetic testing on animals and asked my students what they knew about it. I wrote some of the key words used in this introductory discussion on the blackboard. I then asked my students to listen to me read out the article [in Resource 1] with the following question in mind: 'What is the article about?' I then read the article slowly, pausing to explain any unfamiliar vocabulary, such as 'compassion', 'countless', 'outsourcing' and 'jurisdiction'. As I wrote the words on the blackboard, I asked if anyone could explain what they meant.

When I had finished, I asked my students to talk briefly in pairs about what they thought the article was about. After a brief feedback session, I wrote three more focused questions on the blackboard:

- 'Do you think this ban is a positive step? Why, or why not?'
- 'Should we care if animals suffer?'
- 'The beauty industry is very big in India. Do you think these laws will affect our economy badly?'

I placed two pairs of students together and asked each group of four to consider one of the questions listed as I read the article again. When they had finished discussing the question, I asked a volunteer to report back their thoughts to the rest of the class.

Since then, I have varied this activity by using different articles, and getting my students to think of suitable questions for the second re-reading themselves. I have also encouraged them to note down any words or expressions that they can't understand, rather than me anticipating these myself. I have also

started to give my students a copy of the text after I have read aloud once and they have had an initial discussion about it. They then read it themselves before considering the more focused set of questions.

I usually follow up the reading activity by getting my students to write out the article in their own words, or explain their views on the issues discussed in an essay.

You can learn more about the benefits of groupwork in Resource 2.



Video: Using groupwork

<http://tinyurl.com/video-usinggroupwork>

Now try Activity 2.

Activity 2: Developing your students' reading repertoires

Taking Case Study 1 as a guide, choose a short newspaper or magazine article to read aloud to your class. Decide how it will fit into your lesson plans. How can you link to one of the topics that you are currently teaching? Discuss your ideas with your colleagues.

- Show your students the magazine or newspaper that the article comes from. Make it evident that you find the topic interesting and that you think your students will be interested in it too.
- Show your students any photographs or diagrams that accompany the article.
- Explain the meaning of any unfamiliar words and phrases before reading it.
- Pose your students one or two questions at the start to give them a reason for listening.
- Read the text aloud slowly, pausing to explain the new words and phrases in context.
- Invite your students to discuss the initial question together before setting them one or two further questions to consider during your re-reading of the text.
- As your students gain confidence, give them a copy of the passage to read in pairs or small groups instead of you re-reading the article yourself.
- Allow your students to discuss these questions in pairs or groups and bring the class together for a final feedback session.
- Note down the words and phrases that you can include in a spelling or comprehension test on another day.

3 Using anticipation guides

Reading skills and strategies can be taught explicitly while students are learning subject-specific content through authentic, active reading tasks, as the following case studies and activities show.

An anticipation guide is useful when students are required to read something that contains new or unfamiliar information. The guide can help students to prepare to read and assist them with separating facts from opinions.

Read this case study of a teacher who uses an anticipation guide to help his students read a demanding textbook chapter.

Case Study 2: Using an anticipation guide to help student read a complex text

Mr Madhav is a Class VIII teacher from Chapra. Below he explains how he supports his students with reading challenging information-based texts.

I was planning some social studies lessons on immigration and the issues facing marginalised groups in our society. I knew that the chapters in the textbook would be difficult for my students and that the topic would raise some controversial points about civil rights and responsibilities. I decided to prepare my students by creating a table. [See Table 1.]

Table 1 Anticipation guide.

Statement	Before reading	Page number	After reading
A good citizen always does what the government tells them.	Agree/disagree		Agree/disagree
People who don't own land have no right to be on it.	Agree/disagree		Agree/disagree
True leaders are always recognised for the rightness of their causes.	Agree/disagree		Agree/disagree
Might is always right.	Agree/disagree		Agree/disagree
People who are native to a country should be given priority in making any decisions about it.	Agree/disagree		Agree/disagree
Whenever there is a disagreement, majority opinion should rule.	Agree/disagree		Agree/disagree
If followers commit a wrongful act, the leader should pay the price.	Agree/disagree		Agree/disagree

I gave each of my students a copy of the table and asked them to work in pairs. I explained that, before they read the textbook chapter, they should read each statement in the first column of the table and decide if they agreed or disagreed with it. They then needed to read the textbook chapter and locate the page which provided information relating to the statement, which they should note in the third column of the table. Having finished reading the chapter, they should consider again if they agreed or disagreed with the original statement.

This activity made my students pay close attention to what they were reading. They worked very productively together. I placed the class dictionary at the front of the classroom so that they could look up any unfamiliar words. When they had finished, I drew the whole class together and went through the table with them, focusing on the times they had changed their mind about the statements, and asking them to explain what it was in the chapter that had caused this.

Activity 3: Preparing an anticipation guide to reading

Plan a lesson in which your students use an anticipation guide to reading. You may use a section of the textbook or a current newspaper article. Choose a topic that relates to the interests and reading levels of your students.

Having read the text carefully, write a series of open-ended statements that invite your students to think about the issues to be covered. Avoid using statements that are obviously 'right' or 'wrong', or that ask simply for a 'yes' or 'no' response.



Figure 1 Help your students where necessary.

Struggling students will benefit from having the statements read aloud to them. You can do this yourself or pair them with a more able student, who can do so instead. When the pairs of students have completed the reading activity and the associated table, group them in fours and ask them to share their responses before reporting back to the whole class.

As your students are working, monitor their reading skills, comprehension and participation.

The key resource 'Monitoring and giving feedback' (<http://tinyurl.com/kr-monitoringandfeedback>) provides further information on this classroom technique.



Video: Monitoring and giving feedback

<http://tinyurl.com/video-monitoringandfeedback>

4 Finding the key points in an information text

Activity 4: Identifying the key points in an information text

Read the short passage below (Ramadas, 2007) about cyclones. As you read, look for the following features:

- a **definition** of a cyclone
- an **example** of a cyclone
- a **description** of a cyclone
- a **comparison** of a cyclone to something else
- **clarification** of what happens in a cyclone or when it happens
- **other aspects** of a cyclone.

How many of these features can you find? Underline them all.

In October and November every year cyclones form over the Bay of Bengal. A cyclone is a huge rotating storm. It could be hundreds of kilometres wide. Cyclonic winds blow very fast – up to 300 kilometres per hour (three times as fast as an express train). They make huge waves and blow sea water far into the land, causing floods, uprooting trees, destroying houses and killing tens of thousands of people.

Compare your ideas with ours:

- A **definition** of a cyclone: 'A cyclone is a huge rotating storm.'
- A **comparison** of a cyclone to something else: 'Cyclonic winds are three times as fast as an express train.'
- A **description** of a cyclone: 'A cyclone can be hundreds of kilometres wide. They make huge waves and blow sea water far into the land.'
- **Clarification** of what happens in a cyclone or when it happens: 'Cyclones form over the Bay of Bengal in October and November.'
- **Other aspects** of a cyclone: 'Huge waves', 'floods', destruction, death.

As you will have noted, information-based text will not necessarily include all the features that have been presented above; nor will they necessarily occur in the same order.

Now try doing this with a more difficult text. Read the passage below (Augusta-Palmisano et al., 2002), which is from a science textbook. When you have finished, make a quick sketch of an electrical circuit.

Electricity is a form of energy. It is produced by the movement of electrons. But do you know what actually happens when you flip a switch to turn on the light, or the computer, or the television set? Why don't all the lights go out in your house when one light bulb burns out? Electricity is very useful, but if people do the wrong thing, electricity can also hurt. In some cases it can even kill. Safety is key when it comes to electricity.

How does electricity flow? Electricity flows through paths, or electric circuits. Electrons travel through these paths, but only if they can move around the path and get back to where they started. If the path is broken, the electrons will not move.

A closed circuit allows electrons to travel through an unbroken path and back to where they started. An open circuit has a break in the path. Electrons will not move through an open circuit. All circuits must contain three things: connecting conductors, an energy source and a load. A conductor is a device, such as a

wire, that allows electricity to pass easily through it. An energy source, such as a battery, is what gives the circuit its energy. A load is a device or appliance that uses the energy, such as a light bulb.

Compare your ideas with ours:

- A **definition**: 'Electricity is a form of energy. It is produced by the movement of electrons.'
- An **example**: 'Turn[ing] on the light, or the computer, or the television set.'
- A **description**: Electrons travel through a closed path. If the path is broken they will not move. Electrons must move around the path and get back to where they started.
- **Clarification**: 'An open circuit has a break in the path. Electrons will not move through an open circuit.'
- **Other aspects**: A conductor, such as a wire; an energy source, such as a battery; a load such as a light bulb.



Pause for thought

- Do you think it is helpful to be aware of these common features of information texts?
- How can this list help readers find the key points in such texts?
- Would using this list help your students to read information-based texts more effectively to support their engagement with the ideas in the text?

Information texts often contain a lot of detail, which can make it difficult for students to locate the key points. However, by actively looking out for the common features of such texts, they will be easier to follow. In the next activity you will practise looking for such features.

5 The importance of ideas in an information text

Another way to help your students is to show them how to distinguish the relative importance of information in a text. You will now read a case study of a teacher who did this with her class.

Case Study 3: Establishing the importance of the ideas in an information text

Ms Anjali is a Class VII teacher in Jabalpur. Here she describes how she helped her students classify the information in a science text according to its importance.

I selected a chapter on respiration in organisms in our science textbook (see the passage in the first column of Table 2, below). We began by reading the first text aloud together. Then my students re-read it silently on their own.

Having handed out a copy of the partially completed table to each student, I paired them up and asked them to identify and note down in the respective columns the ideas that they considered to be more important and those that were less important in the text. Once they had finished, they summarised the key science concepts presented in the passage in the space at the bottom of the table.

While my students worked, I walked around the classroom monitoring them. Where I saw that they were progressing well, I praised and prompted them with further questions. Where I noticed they were struggling, I tried to guide them. Table 2 shows an example of the notes that they made.

Table 2 Identifying the relative importance of the ideas in an information text. (Source: National Council of Educational Research and Training, 2007)

Respiration in organisms	More important ideas	Less important ideas
Have you ever wondered why you get muscle cramps after heavy exercise? The cramps occur when muscle cells respire anaerobically. The partial breakdown of glucose produces lactic acid. The accumulation of lactic acid causes muscle cramps. We get relief from cramps after a hot water bath or a massage. Can you guess why it is so? Hot water bath or massage improves circulation of blood. As a result, the supply of oxygen to the muscle cells increases. The increase in the supply of oxygen results in the complete breakdown of lactic acid into carbon dioxide and water.	Muscle cells respire anaerobically	Muscles cramp after exercise
Key science ideas		
Partial breakdown of glucose produces lactic acid.		

This exercise is useful in helping students to focus on the main points in information-based texts. In so doing, they are practising their reading skills and improving their understanding of science at the same time.

See Resource 3 for an example of a completed table for the passage referred to in this case study.

Activity 5: Getting your students to distinguish the relative importance of the ideas in an information-based text

You should refer to Resource 4 for this activity and use Case Study 3 as a guide.

Choose a passage or a page from one of your subject textbooks or make copies of printouts or suitable web pages that you have located online. Organise your students into pairs and ask them to decide together which information is more and less important in terms of the key concepts of the subject. As they work, monitor their reading comprehension and their subject understanding. Make a note of your observations. Use this information to plan the content of the subsequent lesson to ensure that it responds to their needs.

6 Summary

We live in an age where we have access to information all around us, in print and online. Reading is the main way to take advantage of this information. The ability to read and understand this information is a key skill that can contribute to success in school and in life more generally. In this unit you have explored a number of techniques that you can introduce into your lessons to help your students develop active strategies for reading for information. These include using an anticipation guide, identifying the key points of a text and assessing their relative importance. By regularly practising techniques such as these in the classroom, your students will develop the ability to understand and use the information they read – this is key to their success at school.

Resources

Resource 1: Newspaper article

India bans testing of cosmetics on animals

India is the first country in South Asia to ban the testing of cosmetics and their ingredients on animals.

Alokparna Sengupta, Humane Society International (HSI)/India's Be Cruelty-Free campaign manager, said: 'This is a major victory for countless animals who will no longer be made to suffer, and it is a proud moment for India as it becomes the first country in South Asia to end cosmetics cruelty.'

The decision was taken at a meeting of the Bureau of Indian Standards (BIS) Cosmetics Sectional Committee, chaired by the Drugs Controller General of India and is in line with the European Union's stand.

The decision follows appeals from various quarters, including that from the National Advisory Council Chairperson Sonia Gandhi and campaigner for animal rights Maneka Gandhi, to prevent cruelty to animals.

The People for the Ethical Treatment of Animals, India, has also been campaigning to end the testing of household products and their ingredients on animals.

Any cosmetic product which carries out animal testing will face action as per provisions of the Drugs and Cosmetics Act and the Animal Cruelty Act. Violation of the Drugs and Cosmetics Act by any person or corporate manager or owner is liable for punishment for a term which may extend from three to ten years and shall also be liable to fine which could be Rs. 500 to Rs. 10,000, or with both.

The use of modern non-animal alternative tests also becomes mandatory, replacing invasive tests on animals. This means that any manufacturer interested in testing new cosmetic ingredients or finished products must first seek the approval from India's regulator Central Drug Standards Control Organisation. A manufacturer will be given approval to test only after complying with the BIS non-animal standards.

More than 1,200 companies around the world have banned all animal tests in favour of effective, modern non-animal tests, but many still choose to subject animals to painful tests.

Member of Parliament Baijayant 'Jay' Panda said, 'This is a great day for India and for the thousands of animals who will no longer suffer, yet more work must be done. Our government must go a step

further by banning cosmetics products that are tested on animals abroad and then imported and sold here in India. Only then will India demonstrate its commitment to compassion and modern, non-animal research methods and truly be cruelty free.'

Israel and the 27 countries that make up the European Union have implemented both testing and sales bans to bring an end to cosmetics animal suffering in their respective jurisdictions, and HSI is leading the campaign to persuade India to become the next fully cruelty-free cosmetics zone. A sales ban will prevent companies from outsourcing testing and importing animal-tested beauty products back into India for sale.

(Adapted from Dhar, 2013)

Resource 2: Using groupwork

Groupwork is a systematic, active, pedagogical strategy that encourages small groups of students to work together for the achievement of a common goal. These small groups promote more active and more effective learning through structured activities.

The benefits of groupwork

Groupwork can be a very effective way of motivating your students to learn by encouraging them to think, communicate, exchange ideas and thoughts, and make decisions. Your students can both teach and learn from others: a powerful and active form of learning.

Groupwork is more than students sitting in groups; it involves working on and contributing to a shared learning task with a clear objective. You need to be clear about why you are using groupwork for learning and know why this is preferable to lecturing, pair work or to students working on their own. Thus groupwork has to be well-planned and purposeful.

Planning groupwork

When and how you use groupwork will depend on what learning you want to achieve by the end of the lesson. You can include groupwork at the start, the end or midway through the lesson, but you will need to allow enough time. You will need to think about the task that you want your students to complete and the best way to organise the groups.

As a teacher, you can ensure that groupwork is successful if you plan in advance:

- the goals and expected outcomes of the group activity
- the time allocated to the activity, including any feedback or summary task
- how to split the groups (how many groups, how many students in each group, criteria for groups)
- how to organise the groups (role of different group members, time required, materials, recording and reporting)
- how any assessment will be undertaken and recorded (take care to distinguish individual assessments from group assessments)
- how you will monitor the groups' activities.

Groupwork tasks

The task that you ask your students to complete depends on what you want them to learn. By taking part in groupwork, they will learn skills such as listening to each other, explaining their ideas and working cooperatively. However, the main aim is for them to learn something about the subject that you are teaching. Some examples of tasks could include the following:

- **Presentations:** Students work in groups to prepare a presentation for the rest of the class. This works best if each group has a different aspect of the topic, so they are motivated to listen to each other rather than listening to the same topic several times. Be very strict about the time that each group has to present and decide on a set of criteria for a good presentation. Write these on the board before the lesson. Students can use the criteria to plan their presentation and assess each other's work. The criteria could include:
 - Was the presentation clear?
 - Was the presentation well-structured?
 - Did I learn something from the presentation?
 - Did the presentation make me think?
- **Problem solving:** Students work in groups to solve a problem or a series of problems. This could include conducting an experiment in science, solving problems in mathematics, analysing a story or poem in English, or analysing evidence in history.
- **Creating an artefact or product:** Students work in groups to develop a story, a piece of drama, a piece of music, a model to explain a concept, a news report on an issue or a poster to summarise information or explain a concept. Giving groups five minutes at the start of a new topic to create a brainstorm or mind map will tell you a great deal about what they already know, and will help you pitch the lesson at an appropriate level.
- **Differentiated tasks:** Groupwork is an opportunity to allow students of different ages or attainment levels to work together on an appropriate task. Higher attainers can benefit from the opportunity to explain the work, whereas lower attainers may find it easier to ask questions in a group than in a class, and will learn from their classmates.
- **Discussion:** Students consider an issue and come to a conclusion. This may require quite a bit of preparation on your part in order to make sure that the students have enough knowledge to consider different options, but organising a discussion or debate can be very rewarding for both you and them.

Organising groups

Groups of four to eight are ideal but this will depend on the size of your class, the physical environment and furniture, and the attainment and age range of your class. Ideally everyone in a group needs to see each other, talk without shouting and contribute to the group's outcome.

- Decide how and why you will divide students into groups; for example, you may divide groups by friendship, interest or by similar or mixed attainment. Experiment with different ways and review what works best with each class.
- Plan any roles you will give to group members (for example, note taker, spokesperson, time keeper or collector of equipment), and how you will make this clear.

Managing groupwork

You can set up routines and rules to manage good groupwork. When you use groupwork regularly, students will know what you expect and find it enjoyable. Initially it is a good idea to work with your class to identify the benefits of working together in teams and groups. You should discuss what makes good groupwork behaviour and possibly generate a list of 'rules' that might be displayed; for example, 'Respect for each other', 'Listening', 'Helping each other', 'Trying more than one idea', etc.

It is important to give clear verbal instructions about the groupwork that can also be written on the blackboard for reference. You need to:

- direct your students to the groups they will work in according to your plan, perhaps designating areas in the classroom where they will work or giving instructions about moving any furniture or school bags
- be very clear about the task and write it on the board in short instructions or pictures. Allow your students to ask questions before you start.

During the lesson, move around to observe and check how the groups are doing. Offer advice where needed if they are deviating from the task or getting stuck.

You might want to change the groups during the task. Here are two techniques to try when you are feeling confident about groupwork – they are particularly helpful when managing a large class:

- **‘Expert groups’:** Give each group a different task, such as researching one way of generating electricity or developing a character for a drama. After a suitable time, re-organise the groups so that each new group is made up of one ‘expert’ from all the original groups. Then give them a task that involves collating knowledge from all the experts, such as deciding on what sort of power station to build or preparing a piece of drama.
- **‘Envoys’:** If the task involves creating something or solving a problem, after a while, ask each group to send an envoy to another group. They could compare ideas or solutions to the problem and then report back to their own group. In this way, groups can learn from each other.

At the end of the task, summarise what has been learnt and correct any misunderstandings that you have seen. You may want to hear feedback from each group, or ask just one or two groups who you think have some good ideas. Keep students’ reporting brief and encourage them to offer feedback on work from other groups by identifying what has been done well, what was interesting and what might be developed further.

Even if you want to adopt groupwork in your classroom, you may at times find it difficult to organise because some students:

- are resistant to active learning and do not engage
- are dominant
- do not participate due to poor interpersonal skills or lack of confidence.

To become effective at managing groupwork it is important to reflect on all the above points, in addition to considering how far the learning outcomes were met and how well your students responded (did they all benefit?). Consider and carefully plan any adjustments you might make to the group task, resources, timings or composition of the groups.

Research suggests that learning in groups need not be used all the time to have positive effects on student achievement, so you should not feel obliged to use it in every lesson. You might want to consider using groupwork as a supplemental technique, for example as a break between a topic change or a jump-start for class discussion. It can also be used as an ice-breaker or to introduce experiential learning activities and problem solving exercises into the classroom, or to review topics.

Resource 3: Suggested answers to Case Study 3

Table R3.1 Identifying the most and least important ideas in an information text – filled-in example.
(Source: National Council of Educational Research and Training, 2007)

Respiration in organisms	Most important ideas	Less important ideas
Have you ever wondered why you get muscle cramps after heavy exercise? The cramps occur when muscle cells respire anaerobically. The partial breakdown of glucose produces lactic acid. The accumulation of lactic acid causes muscle cramps. We get relief from cramps after a hot water bath or a massage. Can you guess why it is so? Hot water bath or massage improves circulation of blood. As a result, the supply of oxygen to the muscle cells increases. The increase in the supply of oxygen results in the complete breakdown of lactic acid into carbon dioxide and water.	Muscle cells respire anaerobically Partial breakdown of glucose produces lactic acid Lactic acid causes muscle cramp Oxygen makes a complete breakdown of lactic acid into carbon dioxide and water	Muscles cramp after exercise Hot water improves circulation of blood Circulation of blood supplies oxygen to muscle cells Cramp will stop when oxygen completes the breakdown of lactic acid
Key science ideas		
Partial breakdown of glucose produces lactic acid Complete breakdown of lactic acid by oxygen turns lactic acid into carbon dioxide and water		

Resource 4: More or less important information

You can choose a reading passage from any subject area. This may be from a textbook or printed from the internet. This can be an individual, pair or group activity. If your students work in pairs or groups, they can discuss and compare their views on what information is more and less important in a text, tallying and charting their responses before reporting back to the whole class.

You can make the table as long or as short as you like, based on how much your students are expected to read in the session. Your students can use the completed table to write a summary or a report of what they have read.

Instructions to students

Read the chapter, passage or article, and note down the more and less important information. When you have finished, go to the bottom of the chart and write what you think is the key idea from the whole chapter, passage or article.

Table R4.1 Defining more and less important information in an information text.

Title of textbook chapter, passage or article	
Pages read	
More important ideas and information	Less important ideas and information
Key ideas	

Additional resources

- There are a number of non-fiction/information books for children in the NCERT catalogue, in both Hindi and English, which may be used in activities similar to those described in this unit:
http://www.ncert.nic.in/publication/children_books/children_books.html
- The NCERT Department of Elementary Education (DEE) website has some useful publications for subject area reading in Hindi and English – see, for example, the publication *Towards a Green School*:
http://www.ncert.nic.in/departments/nie/dee/publication/Print_Material.html
- The TeachingEnglish website is aimed at teachers of English but contains many ideas of relevance to language teachers in general: <http://www.teachingenglish.org.uk/article/reading-information-motivating-learners-read-efficiently>

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