

Using the community: environmental issues



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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.

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What this unit is about

Children have a natural tendency to explore their world spontaneously. Outdoor learning is a creative, enjoyable and engaging form of learning. It is an integral part of good practice in all curriculum areas. The outdoor school environment and beyond has the potential to offer real-world, hands-on experiences that will engage and stimulate scientific thinking. It provides opportunities to carry out authentic practical work in elementary science.

The National Curriculum Framework of India (2005) states that a child is a natural learner, and that knowledge and understanding are outcomes of their activities. It also states that children are curious, constantly ask questions and love to explore their environment as a way of making sense of their immediate world.

Outdoor learning can involve a visit to a local park or a journey further afield, but exploring the school grounds and immediate surroundings can often be equally effective.

This unit explores how taking lessons outside the classroom can improve students' motivation and understanding of key scientific concepts. The unit focuses on plants and habitats.

What you can learn in this unit

- How to use the community and the outdoor environment to teach elementary science.
- The importance of linking science to the real world in developing students' scientific understanding.
- How to plan and teach outside the classroom and use community resources to improve student engagement with science and their environment.

Why this approach is important

Your role as a teacher is to enable students to learn about science, and the local environment provides you with many contexts and opportunities in which to do so. Science is a practical subject that is relevant to all our lives, so using the outdoor environment can help to link science to your students' everyday lives. Using the local community and its resources will help your students to make connections between the science concepts and ideas you teach them and how to solve everyday problems or how to live their lives more effectively.

This unit focuses on using the outdoors as an extension to your classroom to enhance your teaching. It also explores how you can make use of the local environment as a resource for your teaching.

1 Using the local area as a resource

Several elementary science content areas lend themselves very well to outdoor exploration and using local resources.

Activity 1: Exploring the local area

This is a planning activity for you. You are going to use your local environment to develop your students' understanding of environmental issues.

To do the planning, you first need to go outside and walk around your school grounds and the local area. As you walk, make a list of the areas that have the potential to provide outdoor learning opportunities to support the elementary science curriculum, especially environmental studies. Think about how you might be able to use these areas. For example, which areas could you use to investigate the structure of plants and the different habitats in which they live?

Case Study 1: Doing a scavenger hunt

Mrs Gupta describes how, as part of her efforts to make her science lessons more stimulating, she tried using the outside grounds of her school to start her work on plants.

As I teach in a rural area with fields and trees around, I decided to send my students out on a hunt for different plants that grow around the school grounds. I told the Principal what I was doing and he was happy as he had been encouraging all the staff to use more interactive strategies in our lessons.

On the day, first I spoke to my class about what we were going to do, explaining what the task was. Next I gave them some simple rules about how to behave outside, especially as they were a big class. I also explained how to collect the samples of plants so that they did not damage the plants or take too many samples from any one plant or area.

Their task was to hunt out as many different plants as they could but each pair should collect only six plants as a maximum. They needed to talk to each other so that they did not all pick the same six plants, but they needed to keep the noise down as they worked so that they did not disturb other classes working in their rooms. As they walked round looking for the plants, I also went out and watched and listened as they worked. I found it very interesting to hear their talk, as they were able to identify quite a few plants, but they did not know some of the plants by the ditch that had water in it.

After a few minutes I called them together and we sat under a tree and laid out the plants. The students had worked in pairs. I now asked those pairs to form into groups of four to see how many different plants they had and which they could name.

Then I asked them to say how they knew the plants were different from each other. They suggested such things as the shape of the leaves, flower stalk, etc., and used a variety of words to describe these features. I asked each group of four to take their samples into the classroom. I gave them a sheet of newspaper and told them to lay the plants on this, and then we pressed them between the sheets of newspaper until the next lesson.

Next lesson, I told them, we would look more closely at the different features. We would explore how some plants have similar features but their shapes and forms are very different. They worked quietly and carefully sorting their plants, and then we piled lots of old textbooks on top of the sheets to press them flat.

I was very pleased at how sensible they were when outside but also greatly encouraged by how interested and enthusiastic they were at looking for plants. In previous years I have often found that students do not like the sections on plants in the textbooks, so this was very reassuring.



Pause for thought

- Can you think how this activity would work for your students?
- What else could your students learn from their local environment?

Activity 2: Doing a scavenger hunt

Think how you could do a scavenger hunt with your students as a starter activity to a new chapter in the textbook. How would you set this up with your class?

You may be doing something about materials instead of plants, so your students could collect different substances and then spend time sorting them into groups.

Plan how you will organise your class to go out and collect objects. Don't forget, you may need to inform your headteacher that you are taking your students into the school grounds.

Teach the lesson and watch how your students respond. Support them as necessary.

The preparation for such a lesson is very simple and requires little or no resources to gather, because your students are doing that as part of the activity. This is one way of being a resourceful teacher and using what is available.



Video: Using local resources

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



Pause for thought

- What objects did your class find?
- What other teaching activity can these objects be used in?
- How did your students respond to such an activity?
- How could you extend these kinds of activities?

2 Being resourceful

Many of you may work in challenging situations where you have very little equipment or resources within the school, so extending your activities beyond the classroom will help you to be more dynamic in your teaching. Read Resource 1, 'Using local resources', before you read the next case study and do Activity 3.

In the next case study, a school with only six teachers, the staff worked together as a group to explore what they could do to be more resourceful in using the local environment.

Case Study 2: A resourceful school

One of the teachers, Mrs Nagaraju, explains what happened and how she felt about the process, and the difference it has made for her as a teacher. She decided to plan for her class to undertake an outdoor activity where, working in groups, the students would begin to identify habitats in their immediate surroundings. She had read Resource 2, 'Using groupwork', before she did her planning to help her organise the activity better.

Our Principal is a very good teacher and he uses the local environment often when he teaches his classes. As part of our weekly meeting, one day he asked us as a group to think how we could use the local environment more. As we talked, he listed our ideas and this exchange of ideas stimulated more and more suggestions of how to use the local area. We had ideas such as:

- taking students out to explore such things as the flora and fauna
- mapping the area
- measuring the school buildings and site for different purposes
- gathering resources from the environment to use in the classroom
- developing trails to investigate different things
- looking at habitats
- studying shadows and the sun, etc.
- using local experts to speak to students at school or in their settings/work
- looking at local conservation issues
- collecting and recycling materials to supplement our lack of paper, such as using card from the boxes and saving and reusing envelopes.

I had not thought about such possibilities before and I was quite excited at the list and the prospect of doing some of these ideas. Our next task was to look at how and when we could use these.

First, we agreed to encourage the students to help us gather some materials from the local area and we put up a list of things for them to search for over the next few weeks.

Second, as I was about to start looking at deforestation with my Class VII, I asked the Principal's permission to invite the local forest manager to come in and talk to my students about the problems he faced.

I went home to plan my lesson and to think how I would need to brief the forest manager about my learning intentions for my class if he agreed to come.



Pause for thought

- How does your list from Activity 1 match with the list in the case study above?
- Did the case study suggest other opportunities that you can add to your list? If so, add them now.
- How could you develop a resource base in your class, or the school, for collecting materials that could be used to help your teaching and that of your colleagues?
- In what other ways could you be more resourceful? For example, have you thought of inviting people into the school to talk to your students?

It is good to stop and take stock of the resources that you do or do not have in school and think about how you could extend what you have. Not only does this help you get to know what is available to support your teaching, it also encourages you to think more imaginatively about the resources you could use and the potential in the local area. Talking with other staff will help you to think more deeply about ways in which to resource a planned activity. The impact on your students of working in more active ways will be easy to see.

3 Benefits of using the outside environment

Using the local outside environment will:

- help to contextualise learning, as it takes place in an authentic setting
- help your students to gain real-world, direct understanding of scientific concepts
- make learning more active rather than passive
- provide real opportunities for students to use observational skills, collect evidence and draw conclusions
- engage all the students, whatever their ability or learning needs
- provide opportunities for students to enhance their personal and social communication skills
- give students more room to move around in and to undertake 'messier' activities
- make learning experiences more memorable
- provide more spontaneous or unexpected learning opportunities
- promote students' thinking skills
- develop links with the local community.

Such benefits will add greatly to your students' understanding and will develop their empathy with the locality. As a teacher, you can cover a range of topics by taking your students out of the classroom into the school grounds or further afield so that learning is in a natural setting.

If you are in a village school you can take your students to fields, farms or ponds for a nature walk or other activities. If you teach in a city school you can take your students to places like parks, gardens, nurseries or a zoo.

The teacher in the next case study explores small habitats in the school grounds.

Case Study 3: Mrs Gita's outdoor lesson

When Mrs Gita asked her students to describe a habitat, she noticed they referred to larger habitats and failed to give her examples of smaller ones that could be found in the local area. She decided to plan an outdoor activity so that her students would begin to identify habitats in their immediate surroundings.

A week before I planned to carry out the activity, I went round the school grounds to look for small habitats. These included a crack in the pavement, a large stone, a rotting tree branch and a patch of grass. I prepared a set of questions for each group to assist them in observing and investigating their habitat. I also checked that the area I was using was secure and free of any harmful plants or objects, and informed the Principal of what I was intending to do.

I introduced the activity in the classroom by asking my students to define what a habitat was and wrote their agreed definition on the board:

'A habitat is a place where a collection of plants and animals live and which provides them with food and shelter.'

I have 32 students in my class so I organised them into groups of four and told my students what they were to do. I had written instructions on the board. They went out to the spots that I had numbered outside and carried out their investigation into their habitat.

First they had to decide whether the place I asked them to go to was a habitat. I allowed them time to discuss this. As I went round to each group I asked them to explain how they had reached their decision. If they were unsure, or if there were any disagreements within their group, we referred back to the agreed definition. My students agreed that the stone and the pavement were not habitats. They thought that the grass patch and tree branch were, however.

The task I set my students was:

What evidence would you look for, and what kinds of data would you collect, to prove it was a habitat?

They collected data about what was growing or living in their area. They could do this by making drawings or listing the living things they found. They could also bring other evidence but only if it did not harm the place, or the plant or animal.

Once they were outside, some groups of students quickly identified the habitats in each area, while other groups needed support to find them. Some students drew sketches of the small organisms that they found, while others added labels and notes.

The students collected samples of the soil and plant matter that were found at their habitat. Some were surprised when they lifted up a stone to find small spiders and woodlice. They noted how moist the soil was under the stone and took samples of rotten vegetation.

One group carefully observed the small plants that were growing out of the cracks in the pavement. They used their magnifying glasses and observed ants apparently eating small aphids that were clinging to the underside of the plants' leaves.

I blew my whistle and asked my students to sit on the grass in their groups. I then asked them to present any evidence they had found that supported their claim that it was a habitat.

My students agreed that their understanding of habitats had changed and they now realised that areas such as under a stone could provide a small habitat.

Providing my students with the opportunity to gain hands-on experience had a direct impact on their learning. I could have simply told them in the classroom about the habitats I had identified in the school grounds, but I felt that giving them the opportunity to explore the habitats for themselves was far more motivating for them and deepened their understanding.

This enthusiasm continued into the lessons that followed, where we identified the living organisms we found and made a chart of our finds for each habitat.



Video: Using groupwork

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

4 Outdoor lessons

Taking your lesson outside the classroom should not place any additional demands on your planning. As students become more accustomed to using the school grounds to explore elementary science, outdoor learning will become a more integral part of your lessons. With larger classes you may need to stage these activities so that they go out over a period of time. Also, if you have students with special educational needs, you may need to put them in a supportive group and monitor their work whilst outside.

In the next activity you will plan an outdoor lesson.

Activity 3: Planning an outdoor lesson

Choose one activity from the textbook on a topic you are about to do with your class. For example, you could choose 'The Plant Fairy', Chapter 2 in the Class III textbook, or 'Getting to know plants' or 'The living organisms and their surroundings' in the Class VI textbook.

Create a detailed lesson plan that uses an outdoor area in the school grounds or a locality close to your school. You need to consider the following questions:

- What do you want your students to learn?
- Where will you take your students?
- What safety issues need to be addressed?
- What equipment do you need to prepare?
- How you will introduce the activity?
- What questions will you ask your students?
- How will you support those with particular learning needs?
- How will you make the questions open-ended so that your students have to think more deeply?
- What activities will you suggest they do to answer the question?
- How will the students record their data?
- What kinds of assessment opportunities does the activity present?
- How will you follow up this lesson?

When you have completed your planning, carry out the lesson with your students.



Pause for thought

After planning and delivering your lesson, make brief notes about the following:

- What went well outside?
- Why do you think this was so?
- What could you do next time to make the lesson even better? (Read the key resource 'Planning lessons' (<http://tinyurl.com/kr-planninglessons>) to help you think about how you might answer this question.)
- How did your students respond to being outside and to the task you had set?
- What did your students learn and how do you know this?

5 School trips

A school trip further afield can be extremely worthwhile. A well-planned trip will provide access to resources that students would not have available in the classroom or within the school grounds. School trips provide rich and memorable experiences that expand students' horizons and build their self-confidence.

Organising such a trip will involve extra planning and may not always be possible because of transport problems, large classes and the cost. However, if a visit is possible, there are always safety issues to think about first.

Once that has been arranged (and these stages are shown in Figure 1), there are the same points to consider that you would use for planning a normal lesson.



Figure 1 Planning a school trip.

6 Opportunities to take learning outside

This unit has explored ideas and activities related to plants and habitats. However, outdoor activities can be integrated into many other areas of elementary science.

Activity 4: Using every opportunity to take learning outside

On your own, or with a colleague, brainstorm a list of other activities that relate to the next topic you are planning to teach and can be done outside the classroom. Use this information to plan a lesson and then carry out your plan.



Pause for thought

- How many areas did you think of that would benefit from including outside activities in your teaching?
- How did this help you to plan a more successful lesson?
- How did your students respond to this lesson?

There are many possibilities you could use. Resource 3 has a table that lists a few possibilities to help you extend the use of the local environment.

7 Summary

Student learning does not have to take place within the confines of the classroom. In fact, students can learn at least as much when outside and mixing with their fellow students in less formal situations. Assuming that it is well organised, an outdoor lesson can make learning an exciting, active, sociable and enjoyable process where your students can experience hands-on science.

Unlike the classroom environment, which often requires textbooks, posters and other teaching materials, nature very often provides all the learning resources you will need. Learning outside can therefore supplement and enhance classrooms with limited resources. Using the immediate external environment is particularly valuable with large classes because it gives students more space to sit, draw, write, interact and move around.

Learning outside the classroom can happen at almost any time and almost anywhere – in the school grounds, in the local park, in a garden or nursery, on a farm, in zoos, by ponds, lakes and rivers, and in museums. As an essential way of learning, it should not be restricted to the summer or take the form of an ‘add-on’ after examinations. Rather, it should be part of your regular teaching activity. It is a powerful tool that raises attainment, bolsters social, emotional and personal development, and contributes to the health and wellbeing of students.

Resources

Resource 1: Using local resources

Many learning resources can be used in teaching – not just textbooks. If you offer ways to learn that use different senses (visual, auditory, touch, smell, taste), you will appeal to the different ways that students learn. There are resources all around you that you might use in your classroom, and that could support your students’ learning. Any school can generate its own learning resources at little or no cost. By sourcing these materials locally, connections are made between the curriculum and your students’ lives.

You will find people in your immediate environment who have expertise in a wide range of topics; you will also find a range of natural resources. This can help you to create links with the local community, demonstrate its value, stimulate students to see the richness and diversity of their environment, and perhaps most importantly work towards a holistic approach to student learning – that is, learning inside and outside the school.

Making the most of your classroom

People work hard at making their homes as attractive as possible. It is worth thinking about the environment that you expect your students to learn in. Anything you can do to make your classroom and

school an attractive place to learn will have a positive impact on your students. There is plenty that you can do to make your classroom interesting and attractive for students – for example, you can:

- make posters from old magazines and brochures
- bring in objects and artefacts related to the current topic
- display your students' work
- change the classroom displays to keep students curious and prompt new learning.

Using local experts in your classroom

If you are doing work on money or quantities in mathematics, you could invite market traders or dressmakers into the classroom to come to explain how they use maths in their work. Alternatively, if you are exploring patterns and shapes in art, you could invite maindi [wedding henna] designers to the school to explain the different shapes, designs, traditions and techniques. Inviting guests works best when the link with educational aims is clear to everyone and there are shared expectations of timing.

You may also have experts within the school community (such as the cook or the caretaker) who can be shadowed or interviewed by students related to their learning; for example, to find out about quantities used in cooking, or how weather conditions impact on the school grounds and buildings.

Using the outside environment

Outside your classroom there is a whole range of resources that you can use in your lessons. You could collect (or ask your class to collect) objects such as leaves, spiders, plants, insects, rocks or wood. Bringing these resources in can lead to interesting classroom displays that can be referred to in lessons. They can provide objects for discussion or experimentation such as an activity in classification, or living or not-living objects. There are also resources such as bus timetables or advertisements that might be readily available and relevant to your local community – these can be turned into learning resources by setting tasks to identify words, compare qualities or calculate journey times.

Objects from outside can be brought into the classroom – but the outside can also be an extension of your classroom. There is usually more room to move outside and for all students to see more easily. When you take your class outside to learn, they can do activities such as:

- estimating and measuring distances
- demonstrating that every point on a circle is the same distance from the central point
- recording the length of shadows at different times of the day
- reading signs and instructions
- conducting interviews and surveys
- locating solar panels
- monitoring crop growth and rainfall.

Outside, their learning is based on realities and their own experiences, and may be more transferable to other contexts.

If your work outside involves leaving the school premises, before you go you need to obtain the school leader's permission, plan timings, check for safety and make rules clear to the students. You and your students should be clear about what is to be learnt before you depart.

Adapting resources

You may want to adapt existing resources to make them more appropriate to your students. These changes may be small but could make a big difference, especially if you are trying to make the learning relevant to all

the students in the class. You might, for example, change place and people names if they relate to another state, or change the gender of a person in a song, or introduce a child with a disability into a story. In this way you can make the resources more inclusive and appropriate to your class and their learning.

Work with your colleagues to be resourceful: you will have a range of skills between you to generate and adapt resources. One colleague might have skills in music, another in puppet making or organising outdoor science. You can share the resources you use in your classroom with your colleagues to help you all generate a rich learning environment in all areas of your school.

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:

- o Was the presentation clear?
- o Was the presentation well-structured?
- o Did I learn something from the presentation?
- o 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: Some ideas for outdoor activities

Table R3.1 Some ideas for outdoor activities.

Humans	Materials	Physical processes
Heart rates: Investigate heart rates before and after running a race. Why do our hearts beat faster when we exercise? What makes them slow down? Record the students' heart rates before and after exercising, and put the data into a graph so that you can compare the class.	Finding materials: Hunt for materials around the school, recording the materials that are found. How can the students tell what the material is? What properties does it have? What is it being used for? Have the materials changed over time?	Make and design a kite: Investigate the best materials to use, and the best shape. Can the kite fly without a tail? How does a kite fly? How can it be kept in the air?
Long jump: What makes a good long jumper? Is there a connection between the distance a person can jump and the length of their femur – or some other characteristic?	Soil testing: Collect soil samples from different local areas. Use magnifying glasses, if you have them, to observe their similarities and differences. Use a classification key to identify the soil type. Sieve the soil and identify the different particles.	Exploring forces: What forces are used in opening and closing a door, or in playing in the playground with or without equipment? Draw the forces that are being used.
Muscles and joints: Use playground games to explore the way that muscles and joints work. Ask students to explain what is happening to their joints and muscles as their partner runs, jumps or catches a ball.	Natural and man-made materials: Explore the school to find man-made and natural materials. What are their characteristics? Do they appear to change over time or with exposure to sunlight or rain?	Energy transfer: Investigate what would happen to a plant, a cup of water and a piece of coloured paper after a week of being left in the sun. Make observations over time and record data. What would happen at night, or if the sun was covered by clouds?

Humans	Materials	Physical processes
Food hunt: Hide pictures of food in an outdoor area. Each group of students must collect three different pictures or drawings of foods they eat that contain protein, carbohydrate, fats and fibre. Can students use the foods to design a balanced meal?	Changing states: When it has rained (or you could pour water onto a patch of soil), observe what happens to the water during the day. Where does the water go? Dissolve salt or sugar in water. What can we do to reverse the change?	Shadows: Students in pairs can draw around each other's shadows. How do shadows differ at the beginning and the end of the school day? Observe and explain the differences.
		Light waves: Use red and green filters to view different coloured objects outside. Record the original colour and the colour seen through the filters. What do you notice? Why does this happen?
		Speedy cars: Investigate which surfaces make toy cars go slower or faster. Why?

Additional resources

- A module for teachers on using the outside environment:
http://www.unesco.org/education/tlsf/mods/theme_d/mod26.html

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