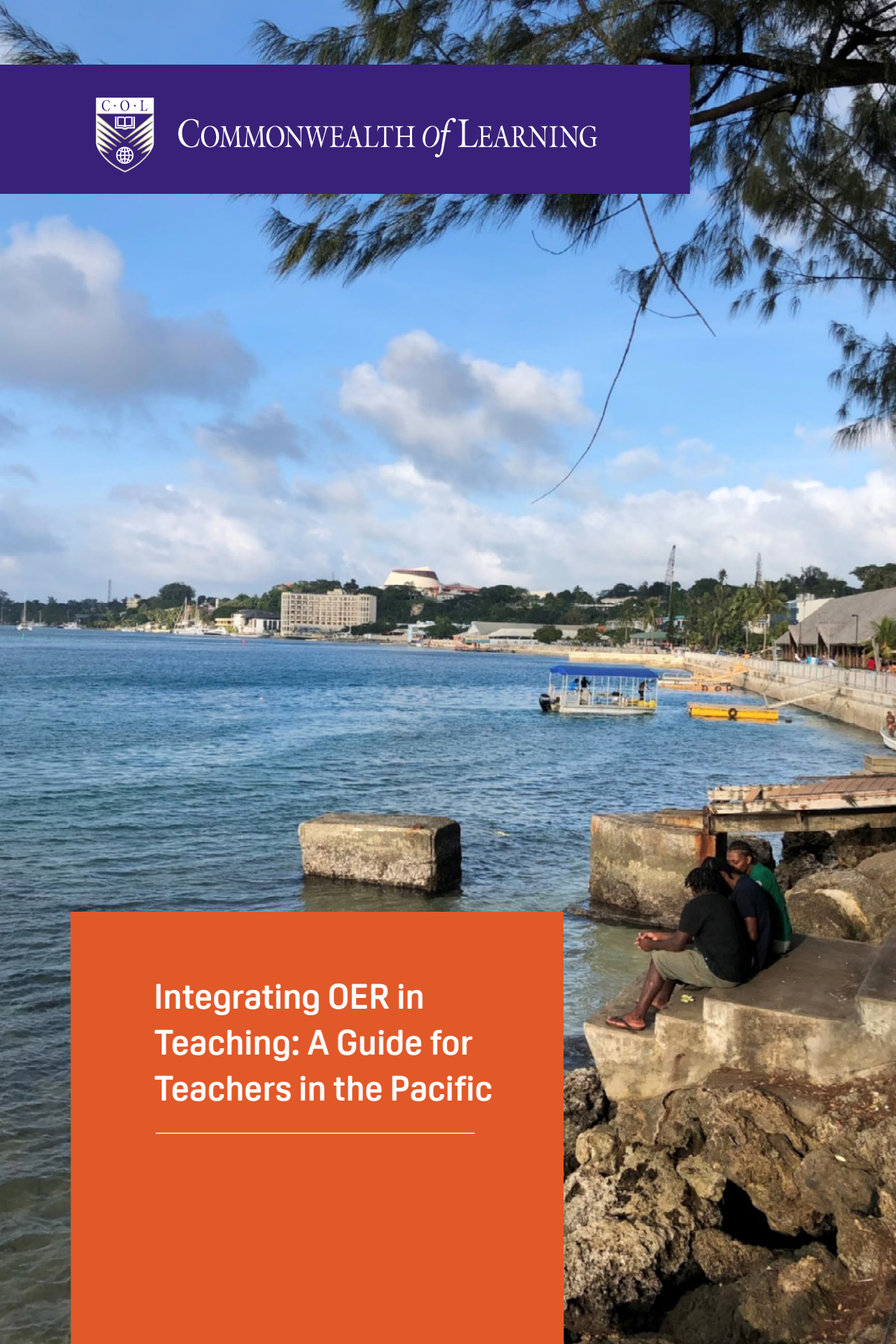

COMMONWEALTH of LEARNING

Integrating OER in Teaching: A Guide for Teachers in the Pacific

Integrating OER in Teaching: A Guide for Teachers in the Pacific

NEW ZEALAND
FOREIGN AFFAIRS & TRADE
Manatū Aorere

COMMONWEALTH of LEARNING

The Commonwealth of Learning (COL) is an intergovernmental organisation created by Commonwealth Heads of Government to encourage the development and sharing of knowledge, resources and technologies in open learning and distance education.

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Introduction

PURPOSE OF THIS GUIDE

This guide is intended to help you as teachers integrate open educational resources (OER) into your teaching. We show you ways in which you can use OER in your classroom and with remote students. Given the changing nature of schooling around the world, we refer to different contexts in which your students may learn.

Here are some definitions of terms for teaching and learning that we use in this guide. We use the term *modalities* to describe the different ways in which learning can be offered.

- **Face-to-face:** The method through which curriculum content (learning material) is taught in person by a teacher to a group of students in the classroom. The term is sometimes shortened to F2F.
- **Blended:** An approach to education that combines online educational materials and opportunities for interaction online with traditional F2F classroom methods.
- **Hybrid:** Any combination of modalities/pedagogies to meet a particular learning need in a particular learning context.
- **Remote:** The student and educator are not physically present in a traditional classroom environment.
- **Online:** Courses are offered and accessed via the Internet. While this is an option at the schooling level, it is more common in higher education.

We suggest that you have a notebook to hand as you work your way through this guide so you can make notes and do some of the activities.

WHY INTEGRATE OER INTO CLASSROOM, REMOTE, BLENDED AND ONLINE TEACHING?

Integrating OER into your teaching provides an effective way to implement a resource-based learning approach, no matter what type of teaching method you use.

Resource-based learning is a pedagogical approach in which students are provided with varied and multiple resources that engage them in the learning process. Instead of passively listening to the teacher or taking notes from the chalkboard, students work with the resources you have provided or they have discovered for themselves. Resource-based learning approaches can improve

motivation for learning. Read the Commonwealth of Learning's guide *Reversioning OER: A Guide for Teachers in the Pacific*, which explains what OER are and how you can adapt them to suit your own teaching and learning environment.

As you find and adapt OER, it is important to consider how best to integrate them into your own teaching. Select resources that are appropriate for different situations: some are suitable for F2F use in the classroom, whereas others would be more effective for students who are working together (for instance, in pairs or groups) remotely or for students who are learning independently.

This guide provides direction in using OER in various situations to encourage a resource-based learning approach to the design of your teaching. Resource-based learning can facilitate student-centred teaching.

Note: Where possible in this guide, we have used openly licensed resources as examples. However, it was not always possible to find these, so we have provided links to freely accessible but non-OER in some cases. Where we have done this, we have identified such resources as **not openly licensed**. This means that you can open and read them when you have access to the Internet, but you **cannot use them as OER** in your lessons.

This guide is divided into five units.

- Unit 1: Developing a framework for hybrid/blended learning in schools
- Unit 2: Customising OER to meet students' needs
- Unit 3: Using OER for blended learning
- Unit 4: Using OER for inclusive learning
- Unit 5: Using OER effectively

There are also six appendices and a glossary to supplement the information in each unit. The five units introduce key points and ideas. They do not provide in-depth discussion and examples of all the issues, but we hope they provide you with some insight into what is possible and help you identify what you would like to find out more about.

Unit 1: Developing a framework for hybrid/blended learning in schools

1.1 INTRODUCTION

School campuses may need to shut down for periods of time for various reasons, but learning and teaching still need to continue. We saw this happen recently when disease control measures were introduced early in the COVID-19 pandemic, leaving many schools around the world unable to operate solely as face-to-face (F2F) institutions. When teachers and students are separated because schools are closed, remote teaching may be the only viable option to keep learning happening.

Adopting blended modes of teaching is one way to keep students learning when they are not on the school campus. *Blended learning* normally combines online educational materials and opportunities for interaction online with traditional place-based classroom methods ("Blended learning," 2021). It is also referred to as *hybrid learning*. In this guide we use the term blended learning. By that, we mean that students can attend their normal school part of the time for F2F learning from their teacher, and for the remainder of the time, they use remote study methods with print-based, digital or online materials (or a combination of all three).

Open educational resources are particularly suitable for use in blended learning, as they can form the basis for a student's activity-based learning. However, when choosing digital resources to support remote teaching or blended learning, developers need to consider students' access to digital devices and the cost and reliability of Internet connectivity.

Note: We suggest you work through this unit even if this situation currently does not apply to you. For example, in some countries, the Ministry may have asked teachers to offer blended learning approaches to reduce the number of people on campus at any one time. However, in other countries, schools may have reopened to operate as normal with no campus limitations. You may still find some of the blended learning practices useful anyway.

Introducing more flexible approaches will require schools to improve how they plan their educational delivery.

One of the benefits of introducing more flexible methods of educational delivery, is that it forces institutions to plan their programmes much more thoroughly ahead of time ... [Acquiring the] resources can be time-consuming, and therefore the pressure to plan carefully is greater than is the case with normal face-to-face provision. However, it is not only materials procurement that needs planning, but all elements of course design, as well as the administrative systems that are required to support flexible provision. (Welch, 1998)

Ideally, a teacher should include an appropriate mix of F2F and off-campus learning activities in their teaching strategy. The framework needs to be informed by the context in which the school, teacher and students are situated. Below, we suggest some ways in which blended learning can be planned and executed in schools.

1.2 DESIGN YOUR STRATEGY SPECIFICALLY FOR REMOTE AND BLENDED ENVIRONMENTS

Work with your colleagues in your school when you are designing your strategy. It is important to carry out this level of planning collaboratively as a school team to avoid overloading students or ending up with competing deadlines.

1. Start by assuming that you are going to have to teach in a blended way for parts of each year. Use your school calendar to work out when students will be away and when they will be onsite. For the purposes of this guide, we are assuming that when the students are away from the school campus, they will have limited access (if any) to online learning via the Internet.
2. Next, decide on the appropriate number of learning hours each day for each age group or grade. The lower grades are likely to have fewer hours than the higher grades. Devise a timetable of activities for each grade, split between individual learning and learning supervised by an adult or older relative (e.g. a family member). While students are typically on campus for seven to eight hours a day when schools are open, not all of this time is spent in lessons on learning activities. Use the suggested time allocations in the national curriculum to guide you in assigning timings for off-campus learning.
3. Encourage students to work in groups where possible so that they can learn with and from their peers, not only in person but also by using digital messaging technologies (e.g. Signal, WhatsApp or Telegram).

4. If access to the Internet is possible, schedule regular sessions in which information is provided for the students so they can all "be on the same page." Teachers can also elicit some feedback during these sessions, depending on their length and the size of the class. Teachers may find conducting short sessions with smaller groups of students more effective than trying to work with the whole class at once.

5. Work out what must be done in person on campus (e.g. complex science experiments) and what could be done at home (e.g. working through the theory that underpins the science experiment). This suggests adopting a flipped classroom approach whereby students are introduced to content at home and practise working through it at school (sometimes called *flipped learning*). This contrasts with introducing new content at school and then assigning homework to be completed independently at home. Your approach could consist of providing your students with print-based or digital material to read through and engage with at home, and then showing relevant videos or simulations when they visit the school campus. An alternative to this approach is to provide students with pre-recorded videos (e.g. on a tablet if your context allows) that introduce them to a topic, and then have them follow up in class with related activities.

ACTIVITY 1.1

When you have Internet access, watch *How to… Flipped Learning*, which explains how this type of approach works.

6. Whichever approach you take to blended learning, ensure that you vary your activities and do not make the teaching and learning environment too complex. Long periods of video observation will cause fatigue, so mix multimedia time with independent and supervised work time.

7. Once you have digital OER mapped to your school curriculum, you can use the same content in F2F, blended, remote and online teaching.

1.3 PLAN EFFECTIVELY

Use this list to help you plan effectively:

1. Choose a period of time (e.g. a month or a term) and map your curriculum to that period: What topics would you teach?

2. Decide which parts of the content can be done remotely (online, if that is a viable option for your students) and which would best be done F2F. For example, is there a practical component that would need to be done in class? Or, from your experience, is there a particularly difficult sub-topic that really needs to be taught in person? The younger your students are, the

more difficult the planning and the more likely it is that you will need to involve siblings, parents or caregivers, for example.

3. Collaborate with your colleagues to develop your schedule so that when the students are on campus, they will be fully occupied and will not have unnecessary down time.

4. Plan your lessons for each part of the teaching: F2F and remote. We have provided lesson plan examples in **Appendices 2, 3** and **5** and an adaptable template in **Appendix 6**.

5. Next, think about how you could modify the F2F element(s) if schools close completely again and you need to deliver all your teaching remotely.

6. Now think about how you could modify your plans and resources to accommodate more diverse learners.

    6.1 This could involve identifying areas of the curriculum where users can choose certain elements according to their preference. The *Te Kete Ipurangi* site of the Ministry of Education in New Zealand, for example, allows users to personalise their homepage so they can focus only on particular curriculum-based subjects or professional development areas.

    6.2 Note that this site also includes guidelines for adapting learning and teaching to increase accessibility for students with special needs (see the section on Learning Support).

7. Younger children will struggle more than their older peers with remote or online learning. The *NEO Blog* suggests best practices for supporting parents who need to assist their children at home. Such practices include:

    a. Setting realistic goals and expectations — for example, focus on one goal at a time and break the learning down into short, well-structured self-study segments of 15–20 minutes.

    b. Taking a flexible approach to lesson plans — for example, for homes with no or limited Internet access, provide audio or visual alternatives and highlight the lessons where parental supervision is most likely needed.

    c. Making the most of every opportunity to teach, no matter how small — for example, building learning into educational games and doing small science experiments in the kitchen.

    d. Having an organised support system between teachers and parents — for example, a weekly online meeting to reflect on the past week's learning and to look ahead to the next week's learning.

e. Anticipating and accommodating language and cultural differences — for example, providing resources for various languages.

Table 1 gives some examples of ways in which learning and teaching can be adapted to accommodate the needs of students with a range of special needs.

Table 1: Adapting teaching and learning practices for different needs

Principle	Implications for practice	Suggestions for practice
Provide access to content in different ways	Comprehensive class notes are provided online (where possible) so they may be accessed in the same manner by all students, regardless of learning or other ability. For example, a student who is blind may have access to text-to-speech software such as JAWS to read the text, thus enabling them to learn at the same time and the same rate as other students. A variety of instructional methods (lecture with a visual outline, group activities, use of stories, or web board-based discussions) are employed to provide different ways of learning and experiencing knowledge. Teachers have an understanding of the impact of the individual student's disability and have given consideration to the different ways in which students with particular disabilities can do things.	Class notes can be provided in various forms: printed, digital pdf, digital word processed (e.g. MS Word). These can be sent via email or digital messaging services where relevant.
	Multimedia and recording devices to record notes are standard classroom tools. Remember, the student is the expert when it comes to themselves and may have a different way of doing a task — for example, if the student's hearing is impaired, they may prefer to lip read, so face-to-face communication is crucial. Do not assume that a student with a disability cannot complete a task. Ask them how they can do it.	Provide audio rather than written instructions for a student with dyslexia. Use face-to-face communication if a student has a hearing impairment.

Principle	Implications for practice	Suggestions for practice
Provide different ways in which students can give and receive feedback	The course is designed to provide a choice of assessment instruments that enable the student to demonstrate they have achieved the learning outcomes. This would include designing the course assessments to include a choice of assessment instruments such as creating academic posters, assignments, group activities, written exams, presentations and oral examinations where appropriate.	Experiment with alternative types of assessment — for example, getting pairs of students to design a poster. You will need to think through your assessment criteria and rubrics for alternative assessments.
	The teacher realises that practice makes perfect and the student is given the opportunity to use the formative learning process to meet performance criteria. The teacher acknowledges that students do not necessarily get things right the first time and that getting things wrong is very much part of getting them right.	Provide a series of short formative assessments that build up towards a summative assessment.
	Feedback is critical to provide the student with constructive and non-judgmental feedback on their performance throughout a course. This principle is about creating a positive culture of reflective learning and constructive feedback that actively supports learning.	Use the following list as a checklist for your feedback process. Students need to: • Understand the marks they have been given. • Know where/what to improve for future assessments. • Understand their progress against learning outcomes. • Identify their own strengths and weaknesses. • Improve their understanding of subject material and build upon their learning. • Develop assessment literacy skills. • Become self-reflective practitioners and lifelong learners.
	Long-term course projects are structured so that students have the option of turning in individual project components separately for constructive feedback and for integration into the final project. There is provision for online practice exercises that supplement classroom instruction.	See Appendix 2 for an example of a longer-term project.

Principle	Implications for practice	Suggestions for practice
Provide different ways in which students can be actively involved	Students must feel that they belong on the course and in the school. If they are made to feel that they are causing problems and are a burden, their educational experience will be negatively affected.	
	The relationship between the teacher and the students is important. Students need to feel comfortable in order to share ideas and request support and the strategies for this need to be made explicit. There is an induction course prior to starting to welcome the students and clearly outline the learning outcomes and programme. There is a handbook available to guide the students through their assignments and a glossary of new terms relevant to the course, particularly in the sciences. The use of checklists and templates by teachers will enhance formative learning, thus enabling the student to think ahead, anticipate and practise.	You need to know your students' names and incorporate motivational strategies into your teaching to encourage student progress and individual student performance. Make sure your school provides a student induction course that includes a student handbook.
	Instructions are given clearly in a number of formats: oral, written, electronic and storyboard. The teacher uses their imagination to get and keep the students' attention. Communication is fostered among students both in and out of class through structured study groups, discussion groups, email lists or chat rooms.	Here are some ways to keep students' attention: • Allow students time to process and respond; e.g. 2 minutes for every 10 minutes of "teacher telling." • When you ask a question, allow 5–7 seconds of "think time." • At the end of a lesson, have students write down 3 things they learned, 2 interesting things and 1 question they have (3-2-1 method of summarising).

Source: Adapted from Heelan (2015, CC BY-NC-SA)

As a teacher, you also need to consider assistive technologies (AT) to support students with learning disabilities (see also Unit 4). While some of these technologies need to be paid for, several are free — Rockwell (2017) lists some at *4 Free Assistive Technology Tools for Your Classroom*.

Mercury Reader: Mercury Reader is a free Google Chrome extension that "cleans up" online articles by eliminating clutter, such as advertisements and pop-ups, and transforms the articles into an easy-to-read format so they look like a PDF or Word document. It can be downloaded to your device.

Google Select and Speak: Select and Speak (formerly SpeakIt!) is a text-to-speech Google Chrome extension that reads text aloud with just a few clicks of a button. Students can select text, press the Play button, then hear the text read aloud. This is a good way for students to access grade-level content when they might otherwise struggle.

To learn more about assistive technologies for inclusive teaching, you can download COL's free guide at Assistive Technologies.

If you are interested in learning more about ways to make teaching more inclusive, and you have Internet access, you may enjoy the Commonwealth of Learning's Universal Design for Learning course, freely available at Commonwealth of Learning (colcommons.org).

In contexts where your students are remote from you, you need to identify how you will distribute the learning materials to them and think about how you can support teacher-student and student-student interactions.

ACTIVITY 1.2

Discuss with your colleagues relevant technologies that could provide access and student support for an OER lesson.

Create a table to identify possible options for distributing an OER lesson and tools for supporting interaction. In each case, identify what is required for the successful implementation of each option.

In the table below, we have listed three functions and given one example and one implication for each one. Complete each row of the table with one more technology and the implication of using this technology.

Function	Proposed technology	Implication
Distributing the lesson resources	1. Physical collection at administration office 2.	1. Printed resources and distribution of times for collection. 2.
Teacher-student interaction	1. Via telephone during office hours. 2.	1. Distribution of contact numbers and times for office hours. 2.
Student-student interaction	1. Free digital messaging app. 2.	1. Students need at least a feature phone or smart phone. 2.

In a few circumstances, both you and your students may have connected devices, such as laptops or tablets, and access to the Internet. In these situations, when you cannot meet F2F, you need to think about how you will communicate with your students. For example, you may be able to use a learning management system (LMS) if your school or Ministry provides access to one.

If you or your students are not connected, you need to explore other strategies. For example:

- Using radio or TV broadcasts of OER with phone-in or text-in options.
- Leaving printed or digital OER for pickup at set places and times.
- Looking at drive-through options — for example, drive through the school grounds, access the school's Wi-Fi and download the week's OER and upload assignments based on the previous week's OER.

ACTIVITY 1.3

Imagine that, because of damage caused by a tropical storm, your school is closed for six weeks. However, your school administration tells you that they have made an agreement to use the local library. The library has limited functional classroom space, but you can meet your class for one day every two weeks (three times over the six weeks). In your notebook, sketch out a six-week teaching block for one of your classes that allows for three face-to-face days; the remainder of the time will be dedicated to remote teaching, with the students working on resources you provide for them.

Use the table below to create your plan. Add other headings if you need them.

Name and level of class:
Topic(s) to be covered:

Time needed	Activities your students should complete			
Week 1 remote				
Week 1 in class				
Week 2 remote				
Etc.				

You can plan for blended learning in your school in different ways. Figure 1, for example, shows a study timetable for students, and Figure 2 shows a blended learning programme designed to provide senior certificate students with a learning experience that was both F2F and online, in the form of a block model. (The blocks are explained below the figure.)

Figure 1: Study timetable for students

STUDY TIMETABLE

- Organise the study timetable by week rather than by day (some learners might prefer to focus on one subject per day).
- Divide up the work as you have already done for your own lesson planning;
- But change the focus to what the learner should do rather than what the teacher should do.
- Work with other teachers to ensure curriculum coverage but focused on key concepts only.
- Also, you might like to consider the guidelines from British Columbia, at the following link: Tracker Learner Engagement.

EXAMPLE STUDY TIMETABLE

WEEK	SUBJECT	FOCUS
1	English (4 hr)	Business letters • Unit 4 Activities 4.1, 4.2, 4.4 Assignment 1
	Maths (4 hr)	Fractions • Unit 6 Activities 6.1, 6.2, 6.3 Quiz 1
	Science & Technology (3 hr)	States of matter • Unit 3 Activities 3.1, 3.2 Quiz 1
	Human & Social Sciences (4 hr)	Post-colonial era • Unit 7 Activities 7.1, 7.2, 7.3 Assignment 1
	Arts & Culture (3 hr)	–
	Lifeskills & Physical Education (4 hr)	Daily home keep fit routine
2	English (4 hr)	–
	–	

Source: British Columbia, Ministry of Education (n.d.), Attendance/Regular Student Contact

Figure 2: Blended block model

Adapted from Cleveland-Innes & Wilton (2018, p. 7)

Pre-teaching preparation: Students completed a test before the online phase began to check their existing knowledge. The teachers could then pitch their teaching to the appropriate level.

Online teaching (core component): The teaching approach covered both individual study via online lessons and activities supported by teachers (i.e. teachers provide feedback through online forums). Both synchronous and asynchronous communication were used for online discussions and group work. One outcome of the online component was an individual activity plan to help students reflect on their learning and to serve as a resource for the later face-to-face activities.

Bridge period: During this period between the two core components of the course, online support was provided to students as they prepared for the face-to-face component.

Face-to-face teaching (core component): The face-to-face teaching component consisted of classroom activities where students learned new content and developed their activity plans for future topics.

Online resources: After students completed the course, additional online resources were made available to help them consolidate their new knowledge.

Table 2 shows a practical example of a blended block model for teaching the particle nature of matter.

Remember: If you collaborate with your colleagues when you are planning your teaching, you, your colleagues and your students will all benefit.

Table 2: Example of blended block model

Block	What the teacher will do
Pre-teaching preparation	Explore this example of a diagnostic worksheet (University of York Science Education Group, 2002; not openly licensed). The idea of a diagnostic test is to determine what the students already know about the topic so that you can plan your teaching accordingly. You then need to decide how to split the class on the basis of their prior knowledge of the topic. Read through Unit 3 of this guide, where we discuss differentiated learning, to learn how to do this effectively. You will also use the results of the test to decide what can be covered in the next three blocks, which parts of the topic can be taught online and which parts need to be F2F. You need to go through the topic and work out how to split the content to ensure that there is a sequential learning path, but at the same time consider student differentiation and what students can view online versus what you want to do in the F2F classes later on.
Online teaching	Search for and select online resources that can be used for teaching the topic. Some examples are PhET's States of Matter: Basics (PhET, University of Colorado) and Annenberg's Virtual Particle Lab (Annenberg Learner, 2020; not openly licensed). Based on block 1, you can advise different students to work through different activities to suit their existing knowledge. At the end of this block, you need to carry out another assessment. This time it is not a diagnostic assessment but an assessment of what students have learned during the online teaching block. Students can go to Footprints Science (Footprints Science, 2020; not openly licensed) to complete an animated assessment on the topic. You are most likely used to F2F teaching, and so you will need to prepare carefully what can be taught online. Adapting Your Face-to-Face Course to a Fully Online Course: A Guide (Columbia University, 2020; not openly licensed) and 9 Ways Online Teaching Should be Different from Face-to-Face (Cult of Pedagogy, 2020; not openly licensed) both have ideas and suggestions for teaching online.
Bridge period	Some of this can be concurrent with the online teaching block. You need to contact your students in groups, using instant messaging or similar technology, to support them during their online learning. You also need to prepare them for the next block. What can you get them to bring to the F2F classes to support learning about the topic? A set of marbles and small cardboard boxes to model how the particles move would be one option. You also need to get the students to identify which parts of the topic they do not fully understand, in anticipation of the next block, where you can explain in person. As a teacher, you need to be aware of the potential misconceptions students will hold on to. Table 3 in an article by Kapici and Akcay (2016) shows the types of misconceptions your students might have.
Face-to-face teaching	This is likely to be the part that you are most familiar with. However, up until this point, your students have been working remotely from you. You need to change your F2F teaching to take this into account. Work from what you did in the bridge period, and be prepared to answer questions from students who may not understand the topic. If you asked them to bring resources to class that relate to the topic, make use of them in the class.
Online resources	These are listed above.

1.4 CONCLUSION

Blended learning may be one way to manage the return to onsite learning in ways that limit the number of people on campus at any one time to ensure physical distancing. It can also be a way to support more students on a single school campus by using a **platoon model** whereby one cohort comes to school in the mornings and another in the afternoons. This allows one school campus to support twice as many students because they come to campus only for the activities that are BEST done face-to-face. Platooning is commonly used in Mozambique.

Once you have developed possible strategies for your teaching, consider ways in which you can use OER. Unit 2 examines customising learning for your students using OER.

If you are interested in learning more about blended learning, consider taking the Commonwealth of Learning's Blended Learning Practice course. The course is offered two or three times a year.

ACTIVITY 1.4

Using Table 2 (above) as a guide, decide on a topic you want to plan to teach and split it up into four blocks as shown, describing what you will do in each block. Also, identify possible online OER you might make available to your students to support them in their learning.

Unit 2: Customising OER to meet students' needs

2.1 INTRODUCTION

One of the big advantages of using OER is that you can use them to customise your students' learning environment to meet their needs. When you read about this topic, you will often see references to *personalising learning*; in this guide, we use the term *customising*.

The key to effective customisation is to find high-quality resources that can be adapted according to students' needs. We offer some suggestions for doing this below. Look at those suggestions in tandem with the Commonwealth of Learning's guide *Reversioning OER: A Guide for Teachers in the Pacific*, which explains how to adapt OER for your students.

Note: OER can be used to help customise learning regardless of the mode of delivery — that is, whether you are using a face-to-face approach or various models of open, flexible and distance learning. You can find other examples of using OER in the Appendices.

2.2 MODIFY MATERIALS TO BETTER MEET STUDENTS' NEEDS

Once you are satisfied with a resource's quality and alignment with the local curriculum and have determined it is openly licensed, you can begin to customise it.

Options for customising OER include:

- Adapting for cultural relevance to your learners so that the content feels more relatable and understandable (e.g. changing pictures or names to mirror learner context and experience).
- Modifying to meet learner interests (e.g. offering more options for tasks and projects) and to foster voice and choice.
- Adding multiple ways to access the material, such as videos and simulations, and providing more choice for learners in how they can show mastery.
- Unbundling full courses to unit-based materials (particularly for interdisciplinary and project-based environments) and "collections" to support more pathways for learners to progress through materials (e.g. choose your own adventure through playlists).

(Learning Accelerator, n.d.)

2.3 USE YOUR TIME AND ENERGY TO IMPROVE THE QUALITY OF THE RESOURCE FOR YOUR STUDENTS

When you are making modifications to the curriculum (if this is possible in your context), it is important to still meet your learning objectives. If possible, schools should try to provide teachers with professional development opportunities focused on curriculum, content knowledge and lesson design.

One way of customising your students' learning is to think about how you can use **differentiated learning**. Differentiated learning is a strategy that promotes effective teaching by providing all students with a range of different avenues for learning (often in the same classroom). It involves developing teaching and learning materials and assessment measures so that all students within a classroom can learn effectively, regardless of ability.[1]

ACTIVITY 2.1

When you have access to the Internet, watch these very short videos: *Differentiating Instruction by Modality*, about using differentiated learning in a primary school in the United States, and *Inclusive Education: Why an Inclusive Learning Community?* about building an inclusive learning community in New Zealand.

Try to identify some ideas or practices you could use to enrich your own learning and teaching environment.

2.4 DIFFERENTIATED LEARNING IN PRACTICE

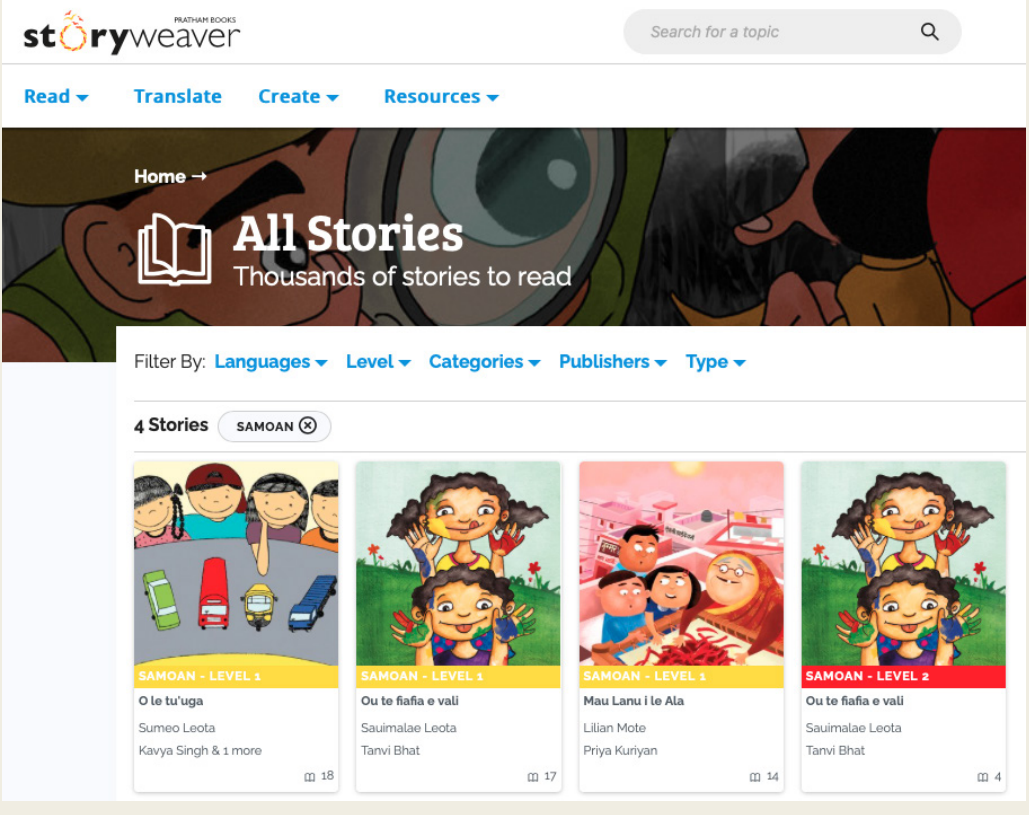
Here is an example of how learning can be differentiated by using storybooks for young children with different reading abilities.

Storyweaver is a digital repository of stories for children published in different languages. The stories are published at five levels: emergent readers, and levels 1–4, from the simplest reading level to the most complex. The levels support differentiated learning, as a teacher can provide books at different levels for different reading abilities in a class. The books can also be used for learning other languages, as many are available in multiple languages.

1 Adapted from Wikipedia, Differentiated Instruction.

ACTIVITY 2.2

When you have Internet access, go to Storyweaver to see how the books are categorised. Then look to see if there are any stories in your own language. For example, there are four books in Samoan. To look at these, click on Read, and then English under TRENDING LANGUAGES to access a language list. On the Filter By menu, click on the blue Languages dropdown menu. Type Samoan into the search box, check the Samoan option, and remove the English option from the text that sits right above the images of the books (simply click on the X beside the word *English*). These four stories will show:



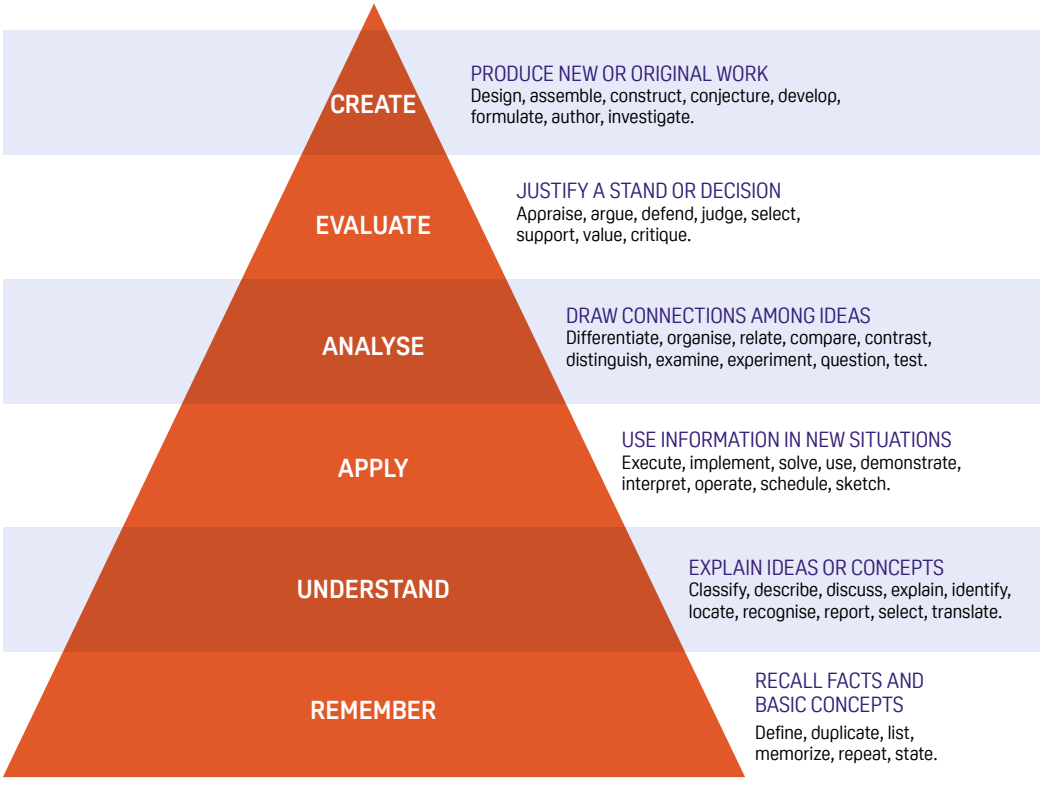
To read one of the stories, put your cursor over the image, then click on Quick View and then Read Story.

Many of the stories on the Storyweaver website are in Hindi, English or French but not in Pacific languages. For a personalised experience for your students, you can choose some stories at the appropriate level in, for example, English. If your students have access to the Internet, they can read the stories online. If not, you should register on the site so you can save or download stories for your students to read offline. You may also consider taking a story originally written in English or French, for example, and retelling that story in a local language.

2.4.1 CUSTOMISING FOR DIFFERENT LEVELS OF CHALLENGE

It is very likely that the students in your class all have different levels of mastery of the content that you want them to learn. You must assess your students to find out what level each of them is at. Once you have done this, one way of differentiating learning is to give them different tasks at different levels of Bloom's taxonomy. You are probably aware that this is a classification of levels of intellectual behaviour, from lower-order to higher-order thinking skills, as shown in Figure 3.

Figure 3: Bloom's taxonomy



Source: Bloom's Taxonomy by Vanderbilt University Centre for Teaching, licensed under CC BY 2.0

You could ask students with limited mastery of a topic to complete tasks at the levels *understand* and *remember*. And you could ask students with higher levels of mastery to carry out tasks at higher levels on the taxonomy.

For example, suppose you are teaching the topic of gas exchange in senior certificate biology. Table 3 (below) shows some possible differentiating activities for the students.

Table 3: Examples of activities linked to levels of Bloom's taxonomy

Activity	Level on Bloom's Taxonomy
Labelling a diagram.	Remember
Matching words to definitions.	Understand
Reading a short text about gas exchange and answering questions about it.	Apply
Explaining the processes involved in gas exchange in mammals at the cellular level.	Apply
Comparing how gas exchange works across mammals, fish and insects.	Analyse

Obviously, alignment with Bloom's taxonomy is only one way to think about differentiating teaching. We therefore examine differentiated learning further in Unit 3.

2.4.2 CUSTOMISING BY LOCALISATION OF AN OER WORKSHEET

In **Appendix 1** of this guide, we have included an OER worksheet on estimation used in quantitative (mathematical) literacy for high school students in South Africa.

How would you go about localising this resource for students in your country? We provide the following suggestions as an example of how to approach this type of customisation.

1 First, we need to adapt it to suit the Pacific context. We have shown where this can be done, using red to indicate which text can be changed. For example, you need to change the currency (rand — used in South Africa) to your own currency.

2 Next, ask your students to insert **their own example** of estimation into the worksheet. Suggest that they include an example from their everyday lives.

ACTIVITY 2.3

Developing differentiated activities:

1 Choose a topic for one of the subjects you teach.

2 Find an OER that covers one aspect of the topic.

3 Adapt the OER, if necessary, to suit your school context (do not spend too long on this for now).

4 Create **three** activities, each at a different level of Bloom's taxonomy: one at the *understand* or *remember* level, one at the *apply* or *analyse* level and one at the *evaluate* or *create* level.

3 At the end of the worksheet, ask your students to comment on how they experienced completing the worksheet. What did they find easy to do? What was difficult? Ask them how accurate their estimation of the numbers in Figures A to C was. They will actually have to count the items to compare them with their estimate.

2.4.3 INTRODUCING PROJECT-BASED LEARNING AND PERSONALISATION

Project-based learning is an effective strategy for supporting personalised learning. While projects can be used with young children, the teacher usually needs to be very hands-on to keep them on track. In the context of blended learning at a high school level, projects can be used very effectively, as students can carry out research-type activities on their own or in groups when away from the school. They can then present their findings during face-to-face (or possibly even online) sessions.

ACTIVITY 2.4

Refer to **Appendix 2** of this guide: Learning Science Outside the Classroom Environmental Trail Task.

This is a project for biology/environmental studies students in high school.

Adapt the task for your own subject and context. You will need to change much of the wording in the task, but try to keep the purpose of project-based learning in mind.

Provide some personalisation/differentiation for two different groups of students in your class. Revise the task to make it easier for one group and more challenging for the other.

Students can work in groups or alone, depending on the circumstances.

Based on your experience, what advice would you give to another teacher about to embark on personalised learning?

Learning can be personalised in many ways, but the ten tips provided in 10 Ways to Personalize Learning by Getting Smart might help you get started.

2.5 CONCLUSION

In this unit we briefly explored some ways in which we can customise learning for our own students and learning contexts. One of the great things about OER is that we can revise or remix the content for a better fit with our own learning and teaching needs.

In Unit 3 we describe various ways in which OER can be used in blended learning.

Unit 3: Using OER for blended learning

3.1 INTRODUCTION

In Unit 1 of this guide you were introduced to blended learning, an increasingly popular strategy for sustaining learning when schools are forced to temporarily close for various reasons. Almost every country in the world experienced this type of disruption at the onset of the COVID-19 pandemic. Although the Pacific region had one of the lowest rates of COVID-19, there were still lockdowns that disrupted the school system in some of the countries in the region. In addition, natural disasters like volcanic eruptions and tsunamis are common in some of the South Pacific islands. These natural disasters always disrupt the normal running of schools, which makes remote learning necessary. Both students and teachers may be forced to stay at home for a significant part of the year, so structured and guided remote learning is crucial to salvaging the academic year. Also, because of the dispersed nature of populations in some of these island countries, it does not make economic sense to build schools in each island, as there may be only a handful of students in each one. Neither is it viable for students to travel long distances by boat every day to attend school.

From an educational perspective, these challenges can be better managed if we create a conducive environment for meaningful learning to take place remotely — that is, some form of supported distance learning. In this regard, the value of OER cannot be overemphasised. At this point it is important to note that OER are also valuable in face-to-face teaching and learning environments — they should not be treated as only distance-teaching resources. Providing plenty of learning resources in face-to-face classes is known to be one of the best strategies for promoting the quality of learning. Given the prohibitive cost of textbooks, OER are an ideal resource. This unit highlights how OER can be used to support learning under different teaching and learning conditions.

3.2 DIFFERENTIATED LEARNING

In the traditional face-to-face classroom environment, it may prove challenging to diversify learning, because all the students in a class are provided with the same textbook, regardless of their ability. Students with learning difficulties may not derive much benefit from the textbook if they find it too difficult to use or to follow and do not have additional support at home. In some resource-constrained environments, a single textbook is shared among many students, making it

impossible for students to have continuous access to it. In both these situations, OER can be useful in diversifying access to learning resources.

Since OER are adaptable, the teacher can simplify resources to suit the different learning levels of the students in their class and give them differentiated exercises. As early as 1961, Ward identified several principles to guide the provision of differentiated education to design a more challenging curriculum for gifted students. Differentiated education can be equally helpful for students who need simpler materials and activities to start with. Once they have worked through these simpler materials, they can progress to more challenging material and learning activities. Thus, OER's adaptability value extends to traditional face-to-face environments.

There are at least two different approaches to implementing differentiated learning in a classroom. For example, the teacher may teach the same content and same concepts to all students using a variety of instructional methods. Or they may present the lesson at different levels of difficulty based on the ability of different students (Weselby, 2021).

Teachers who promote differentiated learning in a class may:

- design lessons based on students' learning abilities and preferences,
- group students by shared interest, topic or ability for assignments,
- assess students' learning using formative assessment, or
- manage the **classroom** to create a safe and supportive environment (Weselby, 2021).

Weselby (2021) suggests four ways in which teachers can differentiate instruction, which can be described as:

- differentiating content (what is taught),
- differentiating process (how it is taught),
- differentiating product (what students produce as evidence of learning), and
- differentiating the learning environment (how and where learning happens).

These four ways are summarised in Figure 4 (below).

Figure 4: Differentiated instruction

DIFFERENTIATED INSTRUCTION INFLUENCES

WHAT IS TAUGHT	HOW IT IS TAUGHT	WHAT IS PRODUCED	HOW AND WHERE LEARNING HAPPENS
provides students with differentiated media and activities at different levels	supports different processes for students to engage with content through writing, speaking, drawing, model-building, etc.	recognises the written word, the spoken word, graphics, models, etc. as equally valid demonstrations of learning	supports individuals, pairs or groups happens in the classroom, in a laboratory, in a workshop, in a shared community space, outside, at home, etc.

AND IS BASED ON STUDENTS'

READINESS	INTEREST	PROFILE including but not limited to any barriers to learning

Children PNG by Ness Kerton for AusAID licensed under CC-BY 2.0

Many schools in developing countries face acute shortages of teaching and learning resources. As a result, student : textbook ratios are too high for every student to have consistent or even regular access to a textbook. In many instances, students rarely have an opportunity to engage with a textbook as an individual. Books are often used by groups of students during a lesson and taken away for safekeeping after the lesson. Furthermore, many students do not have access to reading resources at home. The result is that many students do not engage in any meaningful learning outside the classroom, and this can have a negative effect on their learning performance.

ACTIVITY 3.1

Choose a topic or concept in your subject area and design a short lesson with learning activities that cater for students at different levels in your class. Provide learning resources that the different students can use when they are doing the activities.

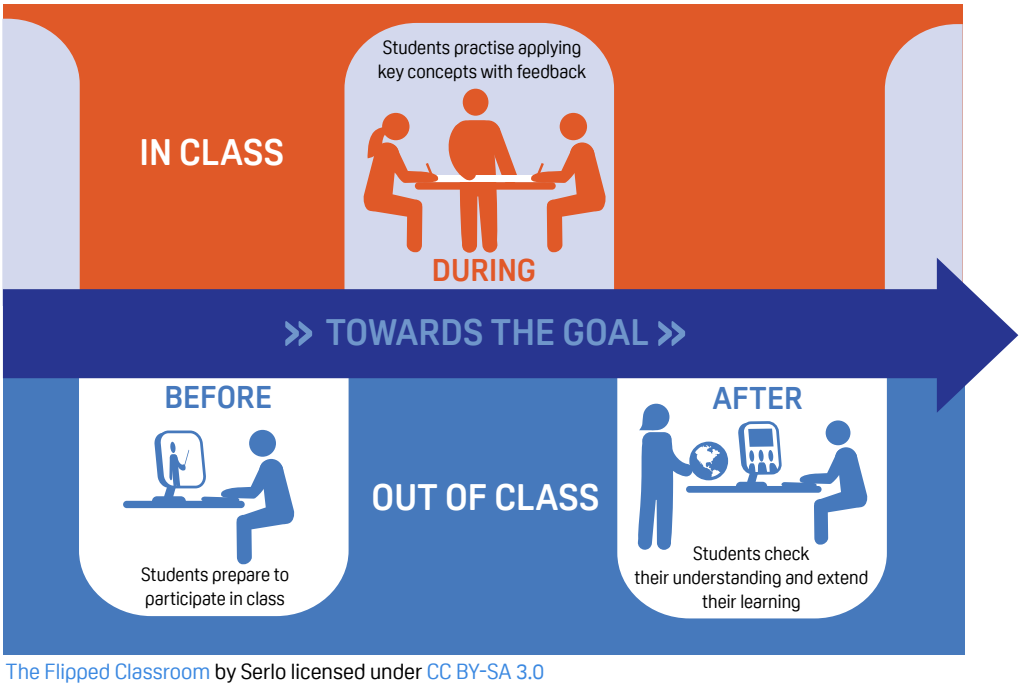
OER provide an affordable way to address a shortage of learning resources. Teachers can search for OER to adapt and share with students to use and complete customised learning activities during lessons and at home, possibly with the help of parents, guardians or siblings. The growing inventory of OER also makes it possible for innovative teachers to use resource-based learning approaches with their classes. (See the Introduction of this guide for more detail on resource-based learning and its advantages as a pedagogical approach.)

Garrison and Vaughn describe blended learning as the "thoughtful fusion of face-to-face and online learning experiences" (2008). Under these conditions, meaningful learning will only take place independently if students have adequate and relevant materials. And here we see the main advantage of using OER. Using OER effectively allows a smooth blend between learning that happens outside the classroom and learning that takes place in the classroom. Figure 5 illustrates this blend as it may appear in a typical flipped classroom model.

ACTIVITY 3.2

- Write down on a piece of paper some of the challenges you face in implementing resource-based learning in your class (or in your school generally). Share your thoughts with a colleague. You can use WhatsApp or email, or your preferred method, if your colleague is remote from you.
- Discuss with your colleague how you can address some of the challenges you listed. Make a table where you show the challenges in one column and possible solutions to the challenges in the other column. Share the table with other teachers in your school.

Figure 5: The flipped classroom: A blend of out-of-class and during-class learning



The Flipped Classroom by Serlo licensed under CC BY-SA 3.0

Bloom's Taxonomy in a Flipped Classroom gives another example, this one linked to Bloom's taxonomy.

ACTIVITY 3.3

- Imagine you have a class you teach using the blended learning mode, as illustrated in Figure 5 (above).
- Design an activity you want your students to do during each of the three stages illustrated in the diagram: before class, during class and after class.
- For each activity, suggest what OER they will be using, how they will be using them and how you will check that they have done the activities.

3.3 OER AND OPEN SCHOOLING

Most developing countries offer young people a second chance to complete their schooling cycle. This usually means running after-school classes for them or engaging them in other forms of flexible independent learning. The practice is commonly known as *open schooling*. The flexibility built into open schooling makes this mode of provision attractive to millions of students who otherwise would not be able to access formal education for various reasons. There is

no doubt that broadening access to education is one of the key strategies for achieving the Sustainable Development Goals, especially Goal 4, which is about ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all.

Open schooling provides access to education for people who live in poverty and other disadvantaged people in society by letting them take part in education without abandoning their economic activities. It offers the flexibility to learn as and when it is convenient for each student. However, it is important to ensure that the quality of learning is high in such flexible forms of learning. Providing appropriate learning materials is key to achieving this. Due to their relatively lower cost, OER mean even poor governments can afford to provide quality resources to large numbers of open school students. Thus, through the use of OER, open schooling has immense potential to promote literacy and numeracy rates and therefore to build knowledge societies. Open schooling also promotes the development of independent learning, which is a key asset in lifelong learning.

OER can play a significant role in enhancing access to and the quality of blended learning, an approach that is widely used in open schooling. For open schooling to be effective, students need to engage with reading resources at home, do activities using those resources and prepare for face-to-face encounters with their teachers. (See Unit 1 for more detail about this — look for the sections on the flipped classroom approach.)

3.4 FACILITATING ACCESS IN SITUATIONS WITH RESTRICTED OR EXPENSIVE CONNECTIVITY

In some countries where resources are available, students are provided with tablets loaded with learning materials relevant to the curriculum. This is the practice in Zambian community schools, which are located in rural areas where there is no Internet access. Through support from the Roger Federer Foundation, these schools were provided with tablets loaded with carefully designed resources, including videos, that are aligned with the school curriculum. The materials are used by both teachers and students and are used offline, so learning can take place even if there is no Internet access.

In other places, students and teachers are provided with a device that enables them to access a local copy of digital materials using mobile wireless connectivity without the need to pay for data or use an Internet connection. Depending on the design of the resources, students can interact with the materials offline and complete the required assignments.

In some countries, the Ministry or individual school provides access to LMSs (e.g. Moodle or Notesmaster) to enable students to interact with each other in the learning process when they have an Internet connection. Where such facilities are available, teachers can design collaborative activities based on OER for students to interact with each other.

3.5 CONCLUSION

In concluding this unit, it is worth noting that while the guidelines given so far are about how to use existing OER to support learning under different conditions, students can also be encouraged to create OER themselves. Usually, student-created OER are contextually relevant and easy to follow. They can be in the form of images depicting local phenomena or local processes, like overfishing or a successful community clean-up campaign.

Unit 4 explains how to use OER for inclusive learning.

ACTIVITY 3.4

Ask students to identify a common economic activity in their country and to take a simple photo of the activity using their phones. They should describe the activity and identify the threats to it. They should then compile a write-up (where possible, as a small group) of the main threats and how the problem can be managed to make the activity more sustainable.

Unit 4: Using OER for inclusive learning

4.1 INTRODUCTION

The United Nations Sustainable Development Goal 4 states: "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (United Nations, n.d.). This global goal is about promoting the right to education for **all people** and entails including **all people** in education systems, irrespective of gender, racial or ethnic origin, economic status, language or disability. How can we achieve such a noble goal?

The UNESCO OER Recommendation of November 2019 (UNESCO, 2019) supports the creation, use and adaptation of inclusive and quality OER, and facilitates international cooperation in this field. It defines five areas of action:

- Building the capacity of stakeholders to create, access, reuse, adapt and redistribute OER.
- Developing supportive policies for OER.
- Encouraging inclusive and equitable high-quality OER.
- Nurturing the creation of sustainability models for OER.
- Promoting and reinforcing international cooperation in OER.

In this way, it emphasises that every child has the right to quality education and learning. Such universal access is crucial if human society is to develop as a global community, with no sector left behind. It is estimated that 93 million children worldwide live with one or more disabilities. Like everyone else, these children have ambitions and dreams, and society must support them as they work towards realising those dreams.

So, Sustainable Development Goal 4 is about ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for **all**. To align with this goal, countries need to develop

ACTIVITY 4.1

- Which groups in your country are mainly excluded from education and why?
- Identify policy measures that need to be taken in your country so these marginalised groups can take part in education. Write a short policy recommendation to your policy makers to encourage them to adopt these policy measures.

inclusive education policies and adopt inclusive education practices that help students with special needs. For such policies to take effect, we need to create enabling environments that will welcome and encourage disadvantaged children to take part in education.

4.2 INCLUSIVE EDUCATION

While inclusive education was largely understood in the past as an education system that accommodates students with physical disabilities, the definition has since been extended to include children who are designated as "at risk" because of issues such as needing to work, being unable to pay school fees, having a chronic illness, and even having family responsibilities. In addition to these at-risk children, many people are discriminated against because of their race, gender and religious affiliations when it comes to educational provision. These groups cannot participate in traditional forms of schooling where no deliberately inclusive policies are adopted and no flexibility is exercised in terms of how education is provided. They need flexible schooling systems that accommodate their other commitments and particular circumstances and allow them to determine **when, where** and **how** they should learn.

Flexible forms of schooling also allow students in these circumstances to determine the pace at which they learn, thus allowing them to work around their other personal commitments. One of the best ways of providing schooling to students with other personal commitments is to design independent learning opportunities for them, so they can learn at home using carefully designed OER. It is important to mention that although the learning is flexible, it should be well structured and the OER should be contextually relevant and appropriate for students. So, what does this mean for the Pacific?

A 2015 study conducted among four Pacific Island member countries — Fiji, Samoa, Vanuatu and Solomon Islands — found that the main barrier to implementing inclusive education was that teachers were not equipped to implement inclusive education practices (Pillay et al., 2015). OER could be used very effectively for training teachers on how best to implement inclusive education practices within a particular cultural context — for example, existing OER guides for professional development could be adapted for cost-effective training in this area.

ACTIVITY 4.2

In your own community, find out from the relevant government departments or community bodies:

- How many students with a disability are not in school.
- What forms of disability they have.
- How OER can be used to support them to learn.

The same report points out that most schools in these Island countries are community schools with no infrastructure or resources for students who have disabilities. OER in the form of reading resources or multimedia could be used to fill this gap.

Sharma et al. (2018) argue that the most significant barriers identified in countries of the Pacific region were inadequate teacher preparation, stigma and negative attitudes towards people with disabilities, and limited engagement with local leaders and key stakeholders.

ACTIVITY 4.3

- Design a poster that creates greater awareness of the educational needs of marginalised students. It should help to address the stigma associated with disability in your context and should be suitable for other Pacific Island countries to adapt for their own context.
- Indicate the open licence you choose and put it on the poster in order to allow easy adaptation by other countries.

4.3 OER AND EDUCATION FOR OTHER MARGINALISED GROUPS

Some people are unable to access or progress in formal education because they are marginalised for various reasons. This section explores a couple of examples of these groups.

One of the groups that are usually excluded from formal education is people in prison, especially people serving long sentences. Several countries are now realising the benefits of providing people in prison with education and skills that support rehabilitation efforts. Such skills help people to reintegrate into the community and contribute towards economic development when they leave prison. How can OER help here?

One of the main advantages of OER is that they can be improved and adapted for a particular group of students in a particular context. Thus, the use of OER enhances educational innovations that allow new ways of teaching and learning. That means it is possible to design effective learning programmes that can be used virtually by people in prison. Such learning programmes can use a variety of OER, including videos, podcasts, printed learning materials and even slide shows. Thus, OER can be used to provide a rich learning environment for people in prison to acquire skills to help them lead more meaningful lives when they leave prison.

What other groups can get access to education through OER?

In most developing countries poverty often presents a major barrier to education. This is mainly due to the costs of going to school — not only the cost of fees and levies but also the cost of uniforms, transport to school and the opportunity costs

of going to school instead of working — which are generally beyond the reach of poor parents.

In some societies, families have to decide which children should use the limited family resources to go to school versus, for instance, working to feed the family. In many cultures, boys are given priority over girls when it comes to education and other training opportunities. Girls and women therefore tend to lag behind in terms of education and in terms of literacy rates generally.

The UNESCO Institute for Statistics (n.d.) reports as follows:

> ***Despite the steady rise in literacy rates over the past 50 years, there are still 773 million illiterate adults around the world, most of whom are women. These numbers produced by the UIS are a stark reminder of the work ahead to meet the Sustainable Development Goals (SDGs), especially Target 4.6 to ensure that all youth and most adults achieve literacy and numeracy by 2030.***

In contexts where OER have been mainstreamed into education, there is evidence of greater participation in education by students from poorer socio-economic backgrounds. This is mainly attributed to the reduced cost of schooling, which has made education more accessible for students from poor backgrounds. The use of OER by community colleges in the United States of America, for example, demonstrated how this practice can reduce the costs of education and widen access for students from poor socio-economic backgrounds (Achieving the Dream, 2020). While the US community college context is slightly different from the Pacific Islands context, this example still shows how OER can relieve students of the burden of buying expensive textbooks, which addresses one of the barriers to access to education.

For those students who stay out of the education system because of the high opportunity costs of attending school, OER can be used to encourage them to learn remotely, as referenced above.

Another important issue we should address is the promotion of marginalised local languages. In many countries, local languages cannot be implemented into the curriculum because of a lack of resources for both teachers and students. Over time, these languages will begin to disappear, taking with them certain cultures and traditions within a society. Inclusive education should include efforts to promote all languages in a country. For this to happen, we need abundant teaching and learning resources in those languages. Such resources can be quickly and easily generated by adapting existing OER, through translations, for instance.

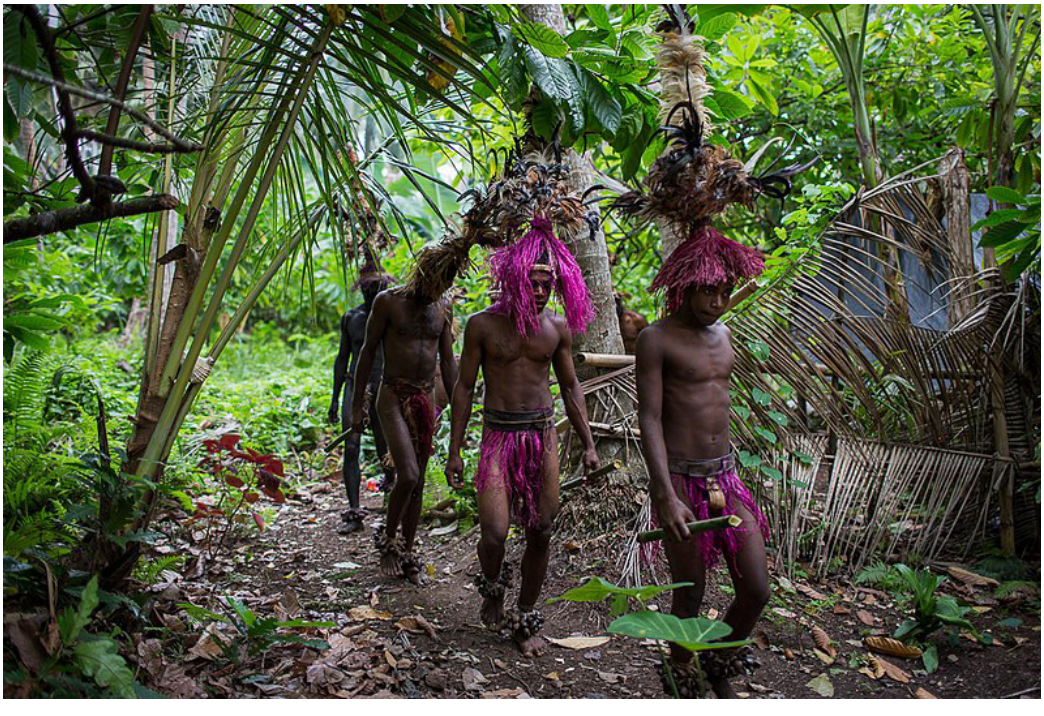
This approach is one way in which OER can be used to include local languages in a curriculum and promote the rich cultural diversity of a society. Table 4 (below) illustrates the diversity of indigenous languages in three of the South Pacific countries.

Table 4: Examples of Pacific countries with diverse indigenous languages

Country	Number of languages
Papua New Guinea	820 languages
Solomon Islands	Over 80 languages
Vanuatu	145 languages

Sources: ProLingo (2016), United Nations (n.d.), Barbour & Daly (2020)

Figure 6: Use images that reflect the culture of your students



Dancers on Malekula Island, Vanuatu by DFAT Photo Library is licensed under CC BY 2.0

"Malekula has a 3,000-year history of human settlement. Each language spoken on the island encodes unique ways in which its speakers have sustained life" (Barbour & Daly, 2020).

4.4 CONCLUSION

The ability to revise and remix OER offers educators a unique opportunity to provide more inclusive learning and teaching materials. Sharing indigenous knowledge in indigenous languages can help keep those languages, and the cultures embedded in them, alive for new generations of users.

The final unit in this guide explores how we can use OER effectively, especially as access to digital resources and devices expands, alongside more accessible connectivity.

ACTIVITY 4.4

- Find out how many languages are spoken in your country. How many of them are mainstreamed through policy in the school curriculum?
- Give some examples of why you think some languages are not used in the school curriculum in your country.
- What role do you think OER can play in supporting minority languages?

Inclusive education involves more than using culturally and linguistically appropriate OER. You can read more about this important topic in *Training Handbook: School-Based Teacher Development for Inclusive Education* and *Inclusive Design for Learning*. These two publications are both free.

Unit 5: Using OER effectively

5.1 INTRODUCTION

Technology increasingly permeates our everyday lives, including education provision. Technology-enabled learning, for example, is being used more and more in today's digital age, reflecting how advanced technologies are enabling students and teachers to access, use and create new knowledge and skills more effectively, efficiently and conveniently.

The combination of technology and OER has enabled new kinds of learning and teaching activities. For example:

- Mixing and remixing content to make new resources
- Adapting or localising content for different learning needs and contexts
- Translating content into new languages
- Extracting from multiple resources only those parts that are needed to support identified learning goals
- Repurposing content design for a specific purpose or target audience for use in a different way
- Regularly renewing the curriculum
- Making content more easily accessible on mobile devices

When we use these kinds of activities, we can:

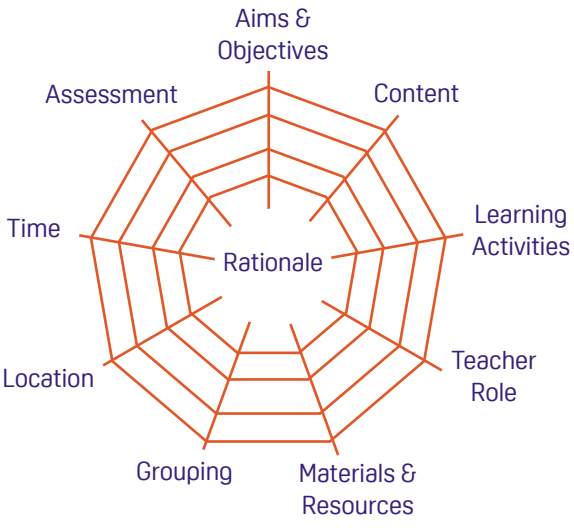
- Encourage more active learning
- Promote deeper thinking
- Be more responsive to context
- Generate more interest to learn
- Promote more independent learning resource-based learning approaches

However, this requires careful planning.

5.2 PLANNING LEARNING EXPERIENCES

Thijs and van den Akker liken the planning of a learning experience to a spider's web (2009, p. 11):

Figure 7: The curriculum spider web



This is because changing any one aspect of the plan affects all other aspects of the plan.

They suggest that teachers ask the following key questions when they are planning a learning experience (note that all the questions are focused on the students and their learning):

Table 5: Planning questions

Component	Core question
Rationale	Why are they learning?
Aims and objectives/ outcomes	What is the goal of this learning exercise?
Content	What are they learning?
Learning activities	How are they learning?
Teacher role	How is the teacher facilitating their learning?
Materials and resources	What are they using to learn? (Here is where you will need to look for and adapt additional OER.)
Grouping	With whom are they learning?
Location	Where are they learning?
Time	When are they learning?
Assessment	How is their learning assessed?

Source: Adapted from Thijs & van den Akker, 2009, p. 12

ACTIVITY 5.1

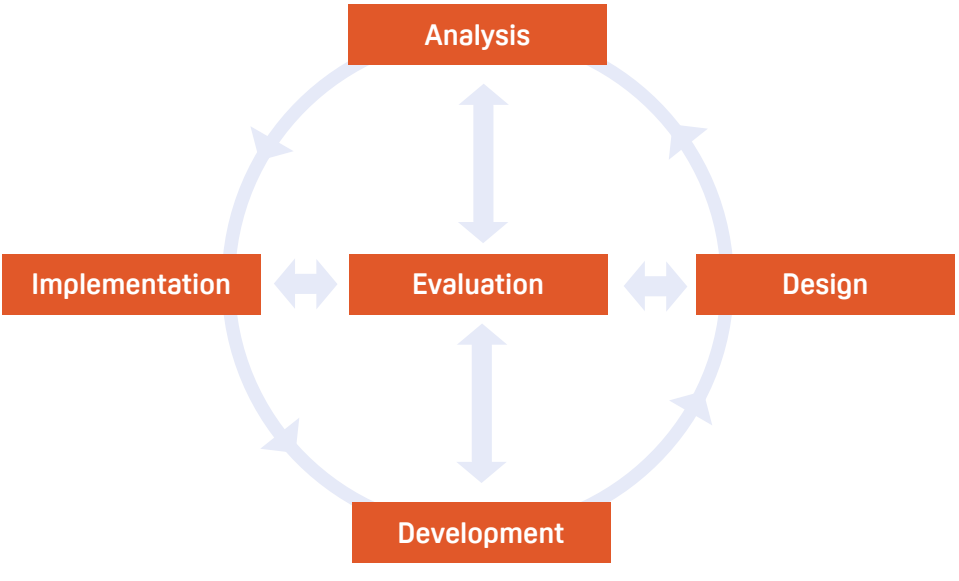
Think of a lesson that you need to teach in the next two weeks.

1. Answer the questions in Table 4, assuming that you will meet the students face-to-face in the classroom.
2. Now answer the questions again, this time assuming that the school campus has been closed and you will need to work with your students remotely, with **no** physical contact.
3. Now think about a blended approach. What would you do face-to-face and what would you do remotely or online if you could meet your students face-to-face for only **half** the time?

You should have noticed from the above activity that while the answers to some of the questions remain the same, other questions need to be answered differently, depending on the context and students.

Any kind of learning and teaching engagement requires planning. In fact, it can usefully be thought of as a cycle of planning, decision making and review, as illustrated in the following diagram:

Figure 8: Curriculum in development



Source: Thijs & van den Akker, 2009, p. 15

In each phase, we need to consider a variety of questions:

- **Analysis:** This phase involves answering questions like: What do relevant stakeholders, including students, suggest about what should be taught, how it should be mediated and how it should be assessed? What contextual factors will influence the curriculum (e.g. access to connectivity and ICT)?
- **Design:** This phase involves responding to the findings of the analysis by answering What? Who? Where? When? How? questions.
- **Development:** This phase involves answering questions such as: What resources will we need (e.g. textbooks, workbooks, videos, lab equipment, etc.) and how will we source, disseminate and use them?
- **Implementation:** This phase involves asking questions such as: How should we organise the learning experiences (e.g. in or out of the classroom?)? Should we use individual, pair, small group or whole group approaches?
- **Evaluation:** This phase focuses on questions such as: Where and how can we improve learning? Questions like this need to be asked both formatively, within each phase, and summatively, at the end of each curriculum cycle.

So, curriculum analysis, design, development, implementation and evaluation are elements of a continuous process. In particular, we use evaluation both formatively, during the process, and summatively, at the end of the process, to gauge how well we are doing. There is always room for improvement.

5.3 ANALYSIS

Let us start with the first step of the process: analysis.

- **Analysis:** This phase involves answering questions like: What do relevant stakeholders, including students, suggest about what should be taught, how it should be mediated and how it should be assessed? What contextual factors will impact the curriculum (e.g. access to connectivity and ICT)?

ACTIVITY 5.2

Choose one of the scenarios in Activity 5.1 to plan in more detail.

1. What does the school curriculum say must be taught in the lesson you have chosen?
2. What learning resources do your students already have access to?
3. What does your previous experience tell you about which areas of the topic require more time, support or extra resources?
4. What do the students already know, or what can they already do, on which you can build?
5. What technology is available to you and the students to support the learning process?
6. Do you have any students with special educational needs? What support and resources are available to help them and you?
7. What options do you have for communicating with your students, assessing their learning and providing feedback on their learning?
8. Add any other questions/issues you feel need to be addressed.

Evaluate: If possible, discuss your ideas with a colleague who teaches the same subject at the same level. If this is not possible, wait for a day or so and then review your answers to the above questions, filling in any gaps in your thinking that you notice.

Now that you have analysed the context for your teaching, you can begin designing the lesson, whether it is a face-to-face, remote or blended lesson.

5.4 DESIGN

Now that you know what you need to teach, to whom and in what context, you can begin to design the lesson you will teach.

- **Design**: This phase involves responding to the findings of the analysis by answering What? Who? Where? When? How? questions.

ACTIVITY 5.3

Copy and complete the following table for the lesson you are planning.

Aim, objective, outcome to be achieved in the lesson	What knowledge and skills are assumed and what still needs to be developed?	What kinds of learning activities will be suitable?	What accommodations will you need to make for some students?	What resources will you need for learning, teaching and assessing?

Evaluate: If possible, discuss your ideas with a colleague who teaches the same subject at the same level. If this is not possible, wait for a day or so and then review your ideas in the table, filling in any gaps in your thinking that you notice.

The information in the last column of the table tells you what learning resources you need to develop your lesson plan.

5.5 DEVELOPMENT

Now that you have designed the lesson, you can develop the learning content.

- **Development:** This phase involves answering questions such as: What resources will we need (e.g. textbooks, workbooks, videos, lab equipment, etc.) and how will we source, disseminate and use them?
- You can find guidelines for finding and adapting OER in *Reversioning OER: A Guide for Teachers in the Pacific.*
- You need to identify and adapt at least one OER that will address a particular problem area or learning need that is currently not well addressed by the prescribed resources.

Once you have all your resources in place, you can begin to develop your lesson plan.

Whether you are teaching in the classroom, remotely online or in blended mode, your lesson will typically have three phases:

- An **introductory phase** in which you outline what will be covered in the lesson. You will usually link back to what has already been learned at this stage by asking a few questions that students can answer easily based on prior learning. Then you can ask a more challenging question that helps them recognise the need to learn something new.

- A **developmental phase** in which you introduce one or more new ideas. It is important in this phase that students work with the new ideas until they have mastered them.
- **A consolidating phase** in which you ask students to apply what they have learned through an authentic activity (see *Reversioning OER: A Guide for Teachers in the Pacific*). Usually, they will need to use both old and new knowledge to address a real-life problem. At this stage you will also summarise the main points of the lesson and give a short description of what will come next.

You will need to think about how you will assess the learning and provide feedback.

ACTIVITY 5.4

Using your responses to Activities 5.1, 5.2 and 5.3, develop your lesson plan and indicate where you will use the prescribed resources and OER resources you have sourced or developed.

You can use the table below or the more detailed lesson plan template provided in **Appendix 6**.

Lesson phase	Learning activities	Resources	Evaluation
Introductory			Were your assumptions about what students already know and could do correct?
Developmental			Were your assumptions about what new learning students could manage correct?
Consolidating			Were your assumptions about how well students could apply new learning correct?
Assessing and providing feedback			Did your assessment instrument, process and feedback provide evidence that the intended aims/objectives/outcomes were met?

Evaluate: If possible, discuss your ideas with a colleague who teaches the same subject at the same level. If this is not possible, wait for a day or so and then review your ideas in the table, filling in any gaps in your thinking that you notice. (You can use the lesson plan template in **Appendix 6** to help with this.)

You have now integrated your adapted OER into the lesson as opposed to using it as an optional resource or incidental add-on.

You are now ready to implement your lesson.

5.6 IMPLEMENTATION

Now you know what activities you want students to do and what resources they will use to do them. The next step is to provide the necessary guidance and support for them to use the resources to complete the activities.

- **Implementation:** This phase involves asking questions such as: How should we organise the learning experiences (e.g. in or out of the classroom)? Should we use individual, pair, small group or whole group approaches?

ACTIVITY 5.5

For the lesson you have designed and developed, work out how you will explain to students how and when they can access the content and complete the activities. At what points in the learning process will you give them feedback?

Now implement the lesson.

Evaluate: What are your first impressions of how the lesson went? Did the students achieve the intended aims, objectives or outcomes? How do you know?

Some of the above questions will be hard to answer unless you have developed an appropriate evaluation strategy.

5.7 EVALUATION

- **Evaluation:** This phase focuses on questions such as: Where and how can we improve learning? Questions like this need to be asked formatively, within each phase, and summatively, at the end of each lesson or curriculum cycle.

After each step in the process, we asked you to evaluate your work **formatively**. Now that you have implemented the lesson, you can evaluate it **summatively**.

To evaluate summatively, you need to make decisions about the following questions:

- What data/evidence will be relevant?
- When should the data/evidence be collected?
- Who should provide the data/evidence?
- How should the data/evidence be collected?

Depending on how you are teaching the lesson, you might collect data, or evidence of learning, through:

- Direct observation
- Tracking student engagement in person or online (e.g. downloads, discussion forums, chats …)
- Student self-reflection and peer-reflection, or student self-assessment and peer-assessment
- Pre- and post-surveys or quizzes — or both
- Formal assessment tasks and instruments
- Evidence added by students to their portfolios
- Questions raised by students
- Tracking student completion rates, pass rates and grades, disaggregated by sex and various barriers to learning
- Tracing how students perform in future lessons based on this topic
- Conducting focus group discussions with students

ACTIVITY 5.6

Think of a class that you teach.

- List all the data you already collect on the students in your class.
- Now re-read the Evaluation section above and decide on three more pieces of data you could collect to help improve your teaching, especially in a blended or remote context.
- Aim to collect that data the next time you teach this topic and analyse it to improve how you teach this topic in the future.

When you have access to the Internet, have a look at *Today's One Thing for Teachers: Assessing for Learning*. It shows how you can collect different sorts of data to assist with your assessment strategy.

This guide has stressed the need to plan your teaching carefully, especially when you are working in a blended or remote context. It has also explained the various ways in which you can use OER in your teaching.

You can use the TIPS Framework to make informed decisions about your selection of OER.

Our Suggested Further Reading, References and Appendices all list sources you can use to help you make best use of the OER that you discover. We wish you good luck with both your planning and your use of OER with your students.

If you would like to learn more about developing digital OER, you can freely access our Digital Skills for OER Sharing course materials.

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Glossary

Asynchronous

Learning that does not require real-time interaction; instead, content is available for students to access when it best suits their schedule.

Blended learning

An approach to education that combines online educational materials and opportunities for interaction online with traditional F2F classroom methods (Wikipedia).

Differentiated learning

A framework for effective teaching that involves providing all students with a range of different paths for understanding new information (often in the same classroom) in terms of acquiring content; and processing, constructing or making sense of ideas (Wikipedia).

Face-to-face (FTF) teaching

Curriculum content (learning material) is taught in person by a teacher to a group of students in the classroom. The term is sometimes shortened to F2F.

Flipped classroom approach

A pedagogical strategy and a type of blended learning that aims to increase student engagement and learning by having students complete readings at home and work on live problem-solving during class time. Can also be vice versa.

Hybrid learning

Any combination of modalities/pedagogies to meet a particular learning need in a particular learning context.

Learning Management System (LMS)

A software application for the administration, documentation, tracking, reporting, automation and delivery of educational programmes (Wikipedia).

Online learning

Courses are offered and accessed via the Internet. While it does occur at the schooling level, it is more common in higher education.

Open licence

A licence for materials that requires attribution but lets people use the content in various ways, including commercially. There are several different types of open licence, with Creative Commons being the most well-known.

Remote learning

The student and the educator are not physically present in a traditional classroom environment.

Resource-based learning

A pedagogical approach in which students are provided with varied and multiple resources that engage them in the learning process.

Synchronous

Online learning that happens in real time.

Appendix 1: Example of OER for customising

The following is a worksheet on estimation that you can customise for your own context. We have used red to show the parts of the worksheet you should change to make it relevant to your context. The boxes explain what you should change.

Estimation

When we are dealing with larger amounts of money, we sometimes do not count every last rand and cent. We may be in situations where we need to have only a rough idea of the correct value. For example, if you are shopping and you need to check if you have enough money to pay for what you are buying, you may look at the items in your basket and see that you have five items, none of which costs more than 20 rand. So, you could estimate that R 100 will be enough to pay for your shopping.

Change this and other instances of it to your own currency.

You can give other examples more suited to your own context.

Estimation is a very important life skill but it needs practice. The more you practise the more accurate your estimations will be. If you talk to an experienced builder or painter, they will often be able to tell you how many bricks will be needed to build a wall or how many litres of paint you will need to paint a room.

Note: Estimation means finding a number close enough to the exact answer.

In Quantitative Literacy, we use estimation to check that the answers we arrive at in a calculation make sense. You should get into the habit of estimating an answer before you resort to using a calculator. Once you have the correct answer, you will then be able to assess the likelihood of your answer being correct.

This is the subject students were enrolled in. You can change the context to your own.

Estimation is not an easy skill to master if you do not have a strategy. One of the strategies you can use is to guess the number of items in a small part of a collection and then guess how many of these small parts make up the whole collection. Look at the items in Figures A–C and see if you can estimate how many books, bananas and sweets there are in each of the pictures. Do not count them all — estimate them.

Figure A: Books

Books (Source: Books Free Stock Photo - Public Domain Pictures, CC0 Public Domain)

Figure B: Bananas

Bananas (Source: Pixnio by Rosendahl, CC0 Public Domain)

Figure C: Sweets

Sweets — Wikimedia Commons by Tony Hisgett is licensed under CC BY-SA

Stop and think.

When you are estimating:

- You do not need to get an accurate answer.
- You only need to quickly get an answer that is close enough to the actual amount.
- You can save time, money and effort by estimating.
  Here is an example where using estimation could save you money:

EXAMPLE: You want to buy five pencils that cost R 1.95 each. When you get to the till, you are asked to pay R 12.25. Is that correct?

Again, change the currency throughout.

Let us estimate the cost of one pencil to the nearest whole number.
Is R 1.95 closer to R 1.00 or R 2.00? *R 2.00*.
Therefore, what will the estimated cost of five such pencils be?
Multiply your estimate by 5 = R 10.00.

It is clear from our estimate that we have been overcharged.
Therefore, ask for the total to be rechecked so that you are not overcharged.

Here is an example where using estimation could save you time:

EXAMPLE: You want to plant a single row of flowers.
The row is 68.3 cm long. Each plant should be 7 cm apart.
Determine how many plants you will require to complete the single row.

Decide if this is appropriate for your context.

Let us estimate the length of the row to a number that is easier to work with.
What number will be easier to divide by?
70 cm, as 68.3 is closer to 70.
Now, how many 7 cm lengths can we get from 70 cm?
70 ÷ 7 = 10.
Therefore, approximately how many plants will we be able to plant in this single row? 10 plants.

Here is another example where using estimation could save you time:

EXAMPLE: You use your calculator to solve 105 × 46, and your calculator gives an answer of 690. Is this answer correct?

Let us start by estimating both the numbers to the nearest whole number that will be easier to multiply with, without using a calculator.

The first number, 105, will be easier to use as 100 and 46 will be replaced with 50 as it is easier to work with multiples of 10, especially when doing mental maths.

Therefore, we are estimating the correct answer by multiplying 100 x 50. When we multiply a unit by 10, we simply add a zero to the number we are multiplying by to get the answer: 3 x 10 = 30 and 9 x 10 = 90 and so forth. Similarly, when we multiply a unit by 100, we add two zeros to the end of the unit to obtain our answer.

Therefore, when we multiply 50 × 100, we add two zeros to 50 to get the estimated answer of 5000.

We can therefore see clearly that the answer of 690 is not a correct answer, as it is much lower than our estimated answer. This will immediately alert you to the fact that something has gone wrong with the way in which you input the numbers into the calculator.

Activity: Estimation

Suggested time:10 minutes
Aim: To give you the opportunity to practice estimation.

What you will do:
Can you estimate how many glasses can be poured from a 2 litre bottle of Coke?

Change to suit your context.

Discussion of the activity:
To answer this type of question, ask yourself the following questions:

How many millilitres are there in 2 litres? 2,000 ml.
What will half this quantity be? 1,000 ml.
Now, halve 1,0000 ml. How much does that give you? 500 ml.
About how many glasses will you be able to pour from 500 ml? 2 glasses.
Now find out how many glasses you can get from 1,000 ml. 4 glasses.
Now find out how many glasses we can pour from 2,000 ml. 8 glasses.

Adapted in revised form from:
Department of Higher Education and Training Quantitative Literacy Learning Guide:
National Senior Certificate for Adults (NASCA) programme
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Appendix 2: Example of a remote lesson

Learning Science Outside the Classroom Environmental Trail Task

You will work in groups of 5, as you did for the Learning Science outside the Classroom overview task.

During the week 2 to 6 March each group will prepare a worksheet for a **4-stop environmental trail**. Learners should be able to complete the trail and any associated activities in 30-40 minutes. The Method sessions on 3 and 5 March will be devoted to preparation. Your lecturer will be available in Lab 145 on both days to assist with (eg) identification of trees, answering questions etc.

You need to:

- Walk round the campus and think carefully about environmental sites of interest. Read the resources put on Sakai to assist you.
- Decide on a trail with 4 stops.
- Each stop should have some information about the item of interest for the learners to read, and a short task to carry out. This should be on the worksheet, but you could also have a sign located at the stop if you want.
- One of the stop tasks must be to estimate the height of a tree by calculation (not direct measurement).
- Write worksheet instructions for each 'stop' on the trail. Learners should be able to complete the worksheet either at the stop or shortly afterwards back at the lab.
- Include directions so the learners know which way to go.
- Your worksheet needs to be typed, with spaces for filling in answers. You might consider including photos or drawings to help the learners understand what to do.
- Link at least one stop to the curriculum (CAPS Life Sciences; gr. 10-12).

Each group will get to try out a trail, complete the activities and assess it, so that each trail will be awarded a mark; all members of a group get same mark.

Possible ideas for stops on the trail

- Measure (estimate) the height of a tree (compulsory)
- Discussion of a named Indigenous tree
- Discussion of a named Alien tree

- Discussion of a diseased tree
- Calculate the surface area of leaves on a tree branch
- Compare different leaf types
- Compare different bark textures
- 'Sniff box' (see "Nature Trails: Guides to Environmental Understanding")
- Examination of invertebrates (e.g. ants)
- Examination of the flower of a plant
- Symbiotic/parasitic relationship
- Density of grass in a unit of area
- Learners draw a map of plants/trees in a given area
- Put items from one stop into a box for learners to identify by touch only
- Other ideas: refer to the resources provided "Nature Trails: Guides to Environmental Understanding" on Sakai

Things to bring for the session:

Clipboard (or something similar to lean on), paper, pencil, pen, scissors/clippers for cutting leaves, camera. **You can specify other equipment you want your colleagues to bring when they try out your trail.**

On the 10 March session, each group is to bring **two copies** of their worksheet. One copy is for the lecturer, and the other is for completion by the group who will walk your trail.

Assessment

Marks will be awarded for originality of activities, practicality of activities (e.g. can they be done in the time available), good worksheet practice, link to the curriculum (at least one stop) etc. Your trail will be assessed by one group and by the lecturer, using assessment criteria still being developed.

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Appendix 3: Lesson plan for remote teaching

Lesson Plan
Name: Tony Mays Date: 01 June 2020

Learning outcomes (What must they learn?)

By the end of the lesson, students in Grade 6 English will be better able to:

- Identify the key features of good short stories
- Write good short stories in English
- Share their created work under an open licence.

Learning strategies (What must they learn?)

This lesson will involve:

- Independent work
- Peer review
- Teacher scaffolding and feedback

Assessment (How will they/we know they have learned?)

Students will submit a draft version of their story for peer review and a final version of their story for teacher feedback using an agreed rubric supplied in advance.

Technology used (How will we communicate while physically distanced?)

SMS
Email
WhatsApp
Internet

Lesson phases incorporating:

Content required to implement lesson
OER
Organisation and presentation

What is communicated before the lesson?

SMS: Good morning. Please check your email for this week's lesson guidelines.

Email: Lesson guidelines for Term 2, Week 4.

What are the key activities in the lesson?

Introductory activity

Students identify a short story they like.

They share the title, author and reasons they like the story in their WhatsApp group.

Developmental activity 1

Students visit African Storybook (READ) and choose one story they like.

They self-reflect on the following questions in relation to both their own favourite story and the story they chose from African Storybook:

1. Who is the main character in each story?
2. What is the problem/challenge/adventure experienced by the main character in each story?
3. How is the problem/challenge/adventure concluded in each story?
4. What is learned by the main character and reader from this experience in each story?

Developmental activity 2

Students draft their own short story.

It should have:

- A main character
- A problem/challenge/adventure
- A conclusion
- A key message

Students share their short stories by email with another student selected at random by the teacher.

Each student provides feedback on the following to their randomly selected peer:

- All four elements of a good short story as noted above.
- Any language/typo errors noticed.

Consolidating activity

Students use the feedback provided by their peers to revise their story.

Students send the revised version of their story to their teacher by email.

Subject: Grade 6 English 2.4

Within 24 hours, the teacher provides feedback on the content and language of the story.

Optional activity

Students have the option to submit the final version of their story for publication by revisiting African Storybook (MAKE).

(This is what is emailed to the students. What the teacher used to say in class now needs to be communicated differently.)

LESSON GUIDELINES FOR GRADE 6 ENGLISH, TERM 2, WEEK 4

Welcome to English Grade 6, Lesson 2.4.

This week we are going to practise story writing.

By the end of the lesson, you will be better able to:

1. Identify the key features of good short stories.
2. Write good short stories in English.
3. Share your story with others.

Time: Expect to spend about 3 hours on this week's work.

Activity 2.4a _____

Purpose: To begin thinking about what makes a short story good

Time: 15 minutes

Task:

1. Identify your favourite short story.
2. In your WhatsApp group, share the following information:

a. Name of your story

b. Name of person who wrote the story or told you the story

c. 1–2 sentences about WHY you like this story.

Feedback:

Comment on at least one person's post. Think about:

- How many of you chose the same story.
- Did you give the same reasons for choosing it?

Activity 2.4b _____

Purpose: To develop your thinking about what makes a short story good

Time: 30 minutes

Task:

1. Visit African Storybook.
2. Click on the READ icon.
3. Choose a story to read.
4. For your own story in Activity 2.4a and the new story, try to answer the following questions:

    a. Who is the main character in each story?

    b. What is the problem/challenge/adventure experienced by the main character in each story?

    c. How is the problem/challenge/adventure concluded in each story?

    d. What is learned by the main character and reader from this experience in each story?

Feedback:

You probably noticed that a good short story must have all the following elements:

1. A main character
2. A problem/challenge/adventure
3. A conclusion
4. A key message

It also helps if:

1. the language is descriptive and
2. there is a picture (or more than one).

Activity 2.4c _____

Purpose: To draft a short story and seek feedback

Time: 1 hour

Task:

1. Plan and write your own short story of up to 500 words.
2. Check that your short story has all the main elements of a good short story:
    a. A main character
    b. A problem/challenge/adventure
    c. A conclusion
    d. A key message
3. Check your language:
    a. Subject-verb agreement
    b. Tense
    c. Spelling
    d. Vocabulary
4. You can use this rubric:

Main character	☹	😐	☺
Problem, etc.	☹	😐	☺
Conclusion	☹	😐	☺
Message	☹	😐	☺
Subject-verb agreement	☹	😐	☺
Tense	☹	😐	☺
Spelling	☹	😐	☺
Vocabulary	☹	😐	☺

5. Now email your draft story to one friend in your class for comment and feedback.
6. Provide feedback to your friend on their draft story.

Feedback:

Your friend should have given you feedback you can use to improve your story in relation to the four content items and four language items.

Activity 2.4d _____

Purpose: To revise and improve your short story

Time: 30 minutes

Task:

1. Improve your short story using the feedback provided by your friend.
2. Now check that your short story has all the main elements of a good short story:
    a. A main character
    b. A problem/challenge/adventure
    c. A conclusion
    d. A key message
3. Re-check your language:
    a. Subject-verb agreement
    b. Tense
    c. Spelling
    d. Vocabulary
4. Now email your draft story with your friend's feedback as well as your revised story to your teacher for assessment.
5. Use subject: Grade 6 English 2.4

Feedback:

Congratulations on writing a successful short story.

If you would like to, you can revisit African Storybook and click on the MAKE icon to see if you can get your short story published.

Summary _____

A good short story has:

a. A main character
b. A problem/challenge/adventure
c. A conclusion
d. A key message
e. Accurate and descriptive language
f. Possibly a picture or two

Rubric for Lesson Plan assessment

Name:

Criteria	Needs improvement (1) Competent (2) Exemplary (3) Score		
Learning Outcomes	• Learning outcomes are stated but not easy to understand. • Learners are given some information regarding what is expected of them. • Learners are not given enough information to determine what they should know and be able to do as a result of learning and instruction.	• Learning outcomes are stated. • Learners have an understanding of what is expected of them. • Learners can determine what they should know and be able to do as a result of learning and instruction.	• Learning outcomes are clearly stated. • Learners have a clear understanding of what is expected of them. • Learners can determine what they should know and be able to do as a result of learning and instruction.
Learning Strategies	• Some Learning strategies are appropriate for learning outcome(s). • Some strategies are based on a combination of practical experience, theory, research and documented best practice.	• Most learning strategies are appropriate for learning outcome(s). • Most strategies are based on a combination of practical experience, theory, research and documented best practice.	• Learning strategies are appropriate for learning outcome(s). • Strategy based on a combination of practical experience, theory, research and documented best practice.
Assessment	• Method for assessing learner learning is vaguely stated. • Assessment is teacher dependent.	• Method for assessing learner learning is present. • Can be readily used for expert, peer, and/or self-evaluation.	• Method for assessing learner learning is clearly delineated and authentic. • Can be readily used for expert, peer, and/or self-evaluation.
Technology Used	• Selection and application of technologies is beginning to be appropriate for learning environment and outcomes. • Technologies applied do not affect learning.	• Selection and application of technologies is basically appropriate for learning environment and outcomes. • Some technologies applied enhance learning.	• Selection and application of technologies is appropriate for learning environment and outcomes. • Technologies applied to enhance learning.
Content Required to implement Lesson	• Some materials necessary for learner and teacher to complete lesson are listed, but list is incomplete.	• Most materials necessary for learner and teacher to complete lesson are listed.	• All materials necessary for learner and teacher to complete lesson clearly listed.

OER	• There are no OER or Open Access materials in the lesson plan.	• The content includes at least one properly acknowledged OER or Open Access link.	• OER and Open Access resources are integrated throughout the lesson plan with appropriate acknowledgement.

Open Educational Resources (OER) Is the OER licensed for open use? (CC license for reuse, remix, revise, redistribution) Is content adaptable or revisable? Does the OER offer one to two rich practice exercises for complex content? Does the OER provide appropriate scaffolding and direction?	• OER is not licensed for open use; • content is not adaptable and/or revisable; • does not provide appropriate direction or scaffolding. • OER lacks an appropriate number of exercises for mastery of elementary and complex content	• OER license is partially open; • content is not easily adaptable and/or revisable; • provides incomplete direction or scaffolding. • OER offers an insufficient number of exercises for mastery of elementary and complex content	• OER is licensed for open use; content is adaptable and revisable; • provides appropriate direction and scaffolding; • offers clearly written, keyed, and scored exercises with documentation; • OER offers appropriate number of exercises for mastery of elementary and complex content
Organization and Presentation	Lesson plan is organized, but not professionally presented.	Lesson plan is organized and neatly presented.	Complete package presented in well organized and professional fashion.
General Comments			/21

Retrieved from Hawaii State Department of Education

Appendix 4: Transformative potential of OER

1.2.3 The transformative potential of OER

The growing demand for higher education and the ongoing rollout of ICT infrastructure have created unique challenges for higher education institutions in an era of tight resources. It has become increasingly important for educational institutions to support, in a planned and systematic manner:

- Development and improvement of curricula and learning materials;
- Ongoing programme and course design;
- Organisation of interactive contact sessions with and among learners;
- Development of quality teaching and learning materials;
- Design of effective assessment tools for diverse environments; and
- Links with the world of work.

OER can make a significant contribution to these processes. However, OER do not automatically lead to quality, efficiency and cost-effectiveness; much depends on the procedures put in place. The transformative educational potential of OER depends on:

- Improving the quality of learning materials through peer review processes;
- Reaping the benefits of contextualisation, personalisation and localisation;
- Emphasising openness and quality improvement;
- Building capacity for the creation and use of OER as part of the professional development of academic staff;
- Serving the needs of particular learner populations such as those with special needs;
- Optimising the deployment of institutional staff and budgets;
- Serving learners in local languages;
- Involving learners in the selection and adaptation of OER in order to engage them more actively in the learning process; and
- Using locally developed materials with due acknowledgement.

The transformative potential of OER also includes the benefits of sharing and collaborating among institutions and countries, and the creatively disruptive role of OER in opening up new educational models.

Taken from Guidelines for Open Educational Resources (OER) in Higher Education (p. 3)

Appendix 5: Example lesson plan for remote teaching by a teacher in the Pacific

Lesson Plan

Name: Donna La Foucade-Holder Date: 009.04.2021
Class: Standard Four
Subject: ELA Creative Writing

Criteria	
Learning Outcomes	By the end of the lesson, learners in Standard Four ELA Creative Writing will be able to: • Identify the important elements of the introduction (paragraph) for a Narrative/Descriptive essay. • Write the introduction (paragraph) for a given Narrative/Descriptive essay. • Publish the final draft of their introduction on Microsoft Teams.
Learning Strategies	This lesson will involve: • Modelling • Group work • Independent work • Peer review • Guidance and feedback from the teacher
Assessment	• Learners will upload a draft of their introductory paragraph to the class page on Microsoft Teams. • Each learner will be required to comment on the work presented by their peers. • The teacher will post feedback for all the introductions. • Learners will take note of comments, edit their writing and post their final draft. • The teacher will review and comment on the final drafts. If necessary, learners will be further guided to edit.
Technology Used	WhatsApp Microsoft Teams Internet

Lessons phases incorporating: Content Required to implement Lesson OER Organization and Presentation	Posted under Assignments on the class page on Microsoft Teams: Good morning learners, this week we shall be focusing on the introductory paragraph of our Narrative/Descriptive essays. At the end of this week, we are going to observe a significant improvement in the introductory paragraph of your essays. Teacher schedules a meeting on Microsoft Teams. **Introductory activity** The teacher informs learners that she is going to share her screen so that they can read two introductions and decide based on what they read, what essay they would like to continue reading. The teacher guides learners to read the prompts as well as the introductions shared. **Introduction 1** Create a story about a frightful experience that you had with your friend. You are reminded to use rich, descriptive language that appeals. You may include details about • Where you were and who you were with • Your emotions and feelings as you engaged in the activity or experience. • How the experience ended Walking along Kane Street every afternoon on our way home from school, my friend Nick and I would always observe the abandoned looking building with a Julie mango tree, laden with mangoes looking juicy and delicious. Living in that building however, was Mr. Creation. Everyone knew the rumour about him. The rumour was that he would sit and draw characters and it was believed that if he drew you, you would somehow die suddenly. **Introduction 2** Write an exciting story about your encounter with an unusual animal. Be sure to use rich descriptions that will appeal to your readers. You may include details about • Where you were and what you were doing • The appearance and behaviour of the animal • How you and your friends reacted to the creature That wonderful, Monday morning the fury of the sun was shining like sparkles on the water. The trees and flowers sprung up like a water fountain. Sweet music to my ears, the birds were chirping melodiously. (CAC English Language Arts Writing Exemplars, Curriculum Planning and Development Division, Pages 61 and 81) The teacher asks learners to vote for the story they would like to read by pressing the raise hand caption when she asks them to indicate their favourite introduction: Introduction 1 or Introduction 2. Learners are prompted to give reasons for their selections. **Developmental activity 1** The teacher presses the link for the following site: https://www.youtube.com/watch?v=eJaOlSwPjAc

Learners view the video based on the important elements of the introduction (paragraph) for a Narrative/Descriptive essay. The introduction must:

- Capture the reader's interest.
- Introduce the reader to the main characters.
- Include the story setting.
- Set the mood for the story.

Developmental activity 2

Learners are placed in five mixed ability groups of four.
They communicate in break out groups to plan and write their introduction for the following prompt:

Create a story about a frightful experience that you had with your friend. You are reminded to use rich, descriptive language that appeals. You may include details about

- Where you were and who you were with
- Your emotions and feelings as you engaged in the activity or experience.
- How the experience ended

Consolidating activity

Learners post their paragraph on the Microsoft Teams class page and receive feedback from classmates.

The teacher provides feedback to learners and instructs them to collaborate again to edit and write their final drafts.

Learners are given feedback from the teacher.

The teacher schedules a class meeting on Microsoft Teams.

Introduction:

Teacher introduces the lesson by challenging learners. They are told that the teacher wanted to see which group would have the most members who could plan and write an interesting introduction in thirty minutes. Learners are cautioned that their introduction must do the following:

- Capture the reader's interest.
- Introduce the reader to the main characters.
- Include the story setting.
- Set the mood for the story.

Activity 1:

The rubric below is introduced and reviewed with learners.

Element	Mastered	Developing	Not Present
Capture the reader's interest.	2	1	0
Introduce the reader to the main characters.	2	1	0
Include the story setting.	2	1	0
Set the mood for the story.	2	1	0

Activity 2:

Learners are given an opportunity to determine what story they wanted to write about. After making their selection, the teacher instructs learners to begin.

Activity 3:

Learners write their introductions within the given time allocated.

Assessment:

After the time is up learners are given the opportunity to read their introductions for the class. Classmates with the guidance of the teacher, determine the number of points to be awarded in each category.

Summary:

The introduction in a Narrative/Descriptive essay must:

- Capture the reader's interest.
- Introduce the reader to the main characters.
- Include the story setting.
- Set the mood for the story.

Appendix 6: Lesson plan template

Summary	
Name:	Date:
Subject:	Year level:
Country:	Time allocation:
Topic:	
Lesson title:	
Curriculum alignment:	

Learning Outcomes (What must students learn.)
By the end of the lesson …
Learning strategies (How must students learn.)
Assessment (How they/we will know they have learned.)

Instructional materials (What downloadable resources are available for students in this lesson?)			
Description:		Repository URL:	
Description:		Repository URL:	
Description:		Repository URL:	

Lesson phases	
Introduction (Introduce topic and assess prior knowledge)	Introductory activity:
Development (Present subject matter and engagement activities)	Developmental activities:

Consolidation (Practice and consolidation of new knowledge: Assessment for learning; Assessment as learning)	Consolidation activities:
Conclusion (Summary, evaluation of outcomes and feedback on learning: Assessment of learning)	Summary and feedback:

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