

## Mathematics In-School Evaluation

Period: 30 April – 4 May 2007

### Task List: Paint Ratios (*Grades/years 4 - 8*)

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#### Evaluation Materials - hardcopy

- **Student learner profile form** for each student (completed by teacher) attached to 'materials' email.
- **Student pre-evaluation worksheet** attached to 'materials' email.
- **Task list-** (this document) to be used by teacher to record all observations in detail.
- **Student questionnaire-** required to be completed by each student upon completion of a learning object. (Young students may complete this in pairs). Attached to 'materials' email.
- **Student post-evaluation worksheet** attached to 'materials' email.

#### Required Software

- **Flash Player version 8**
- It is recommended that the learning object and software be loaded to a server and then individually placed onto each computer's desktop as the learning object is still in development and may not function correctly over a network.
- Attached to your 'confirmation' email are instructions on how to download the required software (free of charge) via the TLF website. Alternatively go to <http://www.adobe.com/downloads/#players>.

#### Return Feedback

Post:	Fax:	Email:
<p><b>No later than 3 May</b></p> <p>Preferably express post <i>*Remember to add postage costs to your schools invoice.</i></p>	<p><b>Fax no later than 4 May</b></p>	<p><b>Email no later than 4 May</b></p>
<p>Focus Group Co-ordinator The Learning Federation PO Box 177 Carlton South Victoria</p>	<p>Fax number: 03 9662 9572</p>	<p>Email: <a href="mailto:ise@thelearningfederation.edu.au">ise@thelearningfederation.edu.au</a></p>

## Opening/Playing a Learning Object

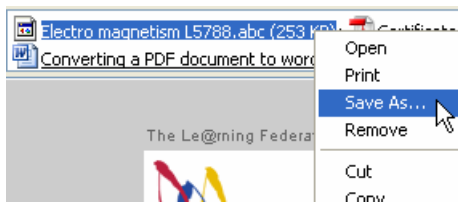
There has been an increase in school's firewalls and servers not allowing zip files in teacher's inboxes. All our learning objects are usually zipped as they are large files. Many firewalls recognise a file if it is zipped and automatically rejects the email.

To overcome this issue the learning object attached to this email has a made-up file extension (a file extension that is not .zip in this case .abc).

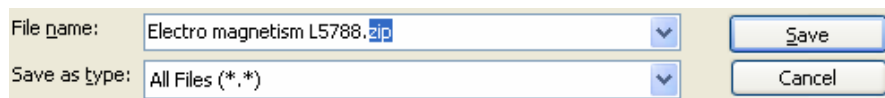
Use the following steps to rename the attachment as a zip file to be able to run the file:

You need to rename the attachment so the file extension is once again .zip *not* .abc

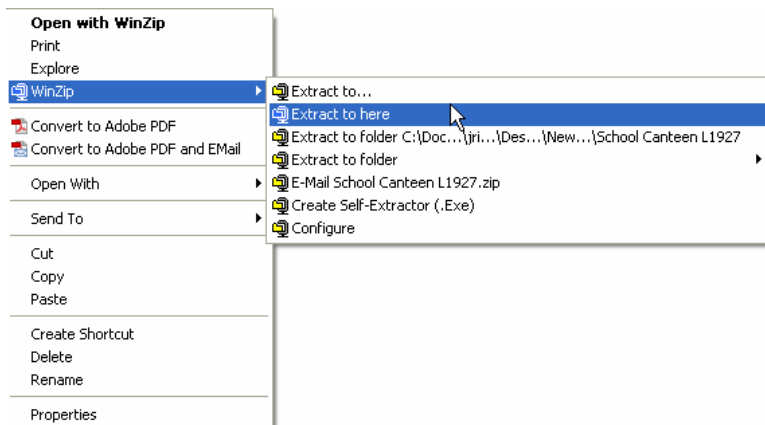
1. Right-click the attachment
2. Select **Save As**



3. In the **File name** drop-down menu change .abc to .zip



4. Ensure you save the learning object in a place you can retrieve it. For example on your desktop  
The attachment will now be saved as a zipped (.zip) file
5. Right-click the zipped file and extract the contents by selecting either **Extract to...** or **Extract to here**



6. Double-click the icon **index.html** (it looks like an Internet Explorer icon) and the learning object will open.



## Step-by-step guide to the structure of the evaluation

1. An evaluation consists of a pair of students in the year range outlined. We would like you to involve 2 to 6 pairs in the evaluation.
2. The **student profiles form**, attached to your 'confirmation' email needs to be completed for each student. This assists us in understanding a student's background.

If, on page one of this document, a **pre-evaluation worksheet** or a **pre-test** is outlined, please have students complete these before commencing the learning object.

3. Students navigate their way through a learning object with the classroom teacher asking some questions along the way and making observations using the questions outlined in this **task list**.

If, on page one of this document, a **post-evaluation worksheet** is outlined, please have students complete this worksheet after working with the learning object.

4. Upon completion of the learning object, each student completes a **student questionnaire**. There may also be a post-test for each student to complete.

## Introduction to students before commencing the evaluation task (in your own words)

*Today we will be evaluating some material for an organisation called The Le@rning Federation.*

*The material, called learning objects, on your computer, will assist teachers and students in classroom learning.*

*These learning objects are in development, therefore they are not complete, they are a prototype.*

*There may or may not be any sounds and in some places you might need to pretend that the material does something which it will do when it's completed.*

*This is about understanding and evaluating the prototype – not a test about you.*

*The learning objects will be available in schools across all of Australia and New Zealand. (You may already have used some of them in class). Before this happens, the organisation needs students and teachers to review some learning objects for them- they want to know all about what you think of the way it looks, sounds, whether you like it or not, the things you think might need correcting and any parts you find difficult to understand.*

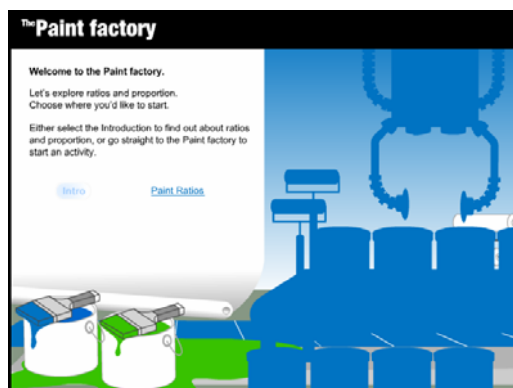
*Even if you understand everything on the screens, try to think of other students in your class and how it might work for them.*

*Most importantly, they need you to tell them what you think students can learn from the learning objects and what they need to do to improve them for all the students who will one day be using them in the classroom. So please talk to each other, have fun and occasionally we will ask you questions.*

## Task List – Paint Ratios prototype (Grades/years 5 – 7)

Date		School Name	
Session		Evaluator	
Students' First names	(A)	Grade/Year level	(A)
	(B)		(B)
Key Test Objectives	<ul style="list-style-type: none"> <li>• Does this prototype achieve its intended learning objectives?</li> <li>• Can students navigate easily through this prototype?</li> <li>• What improvements can students and teachers identify?</li> </ul>		
Learning Objectives	<p>Students will be able to:</p> <ul style="list-style-type: none"> <li>• Solve contextual problems that involve finding equivalent ratios.</li> <li>• Solve contextual problems that involve proportional thinking.</li> <li>• Construct a conceptual understanding of ratio and proportions through use of models and representations</li> </ul>		
Context/ What the Object Does	<p>Students will be solving contextual ratio problems by mixing cans of paint using a paint machine.</p> <p>This series of learning objects is focused on the development of students' reasoning in ratio and proportion.</p> <p>Students will explore ratios such as 2:1 and 5:2.</p>		

When this learning object opens, the first screen should look like this:



If the opening screen does not appear as the above, please contact The Le@rning Federation on 03 9207 9600

## **Before commencing the prototype**

 **Students need to now individually complete the pre-evaluation student worksheet**

# Task list questions

1. All questions in *italics* are related to *observations of students* we would like you to record.
2. All questions in **bold** we would like you to **ask the students directly** and record their answers.
3. Please answer all questions, even if in reflection at the end of the evaluation.

Where possible identify students as “A” and “B” to help us assess how well each student works with the learning object.


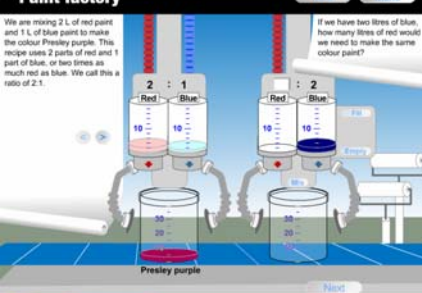
 Please record the time that students commence the learning object: \_\_\_\_\_


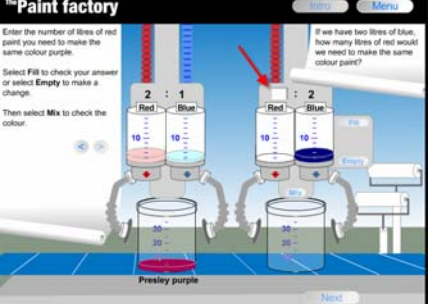
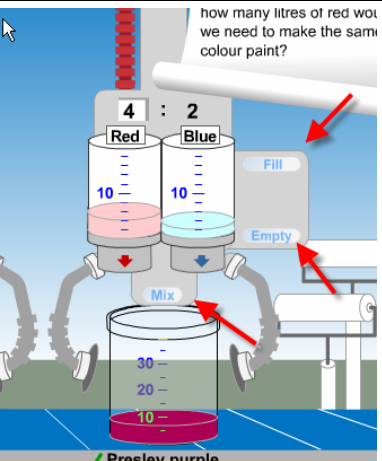
**Please explain to the students:**

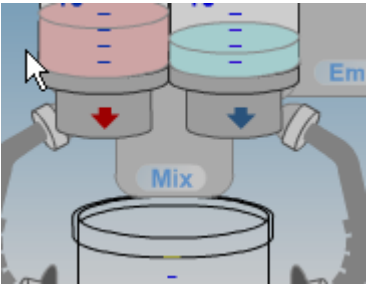
- ***This learning object has been designed in such a way that every time you use it you will be given different numbers to work with.***
- ***The reason it was designed this way is so that you can use it many times in class and not have to do the same calculations each time.***
- ***Record the response of Student A in the column headed A and that of Student B in column headed B.***

**Note in this prototype the intro is not working.**

## Exercise 1

<p>Welcome to the Paint factory.</p> <p>Let's explore ratios and proportion. Choose where you'd like to start.</p> <p>Either select the Introduction to find out about ratios and proportion, or go straight to the Paint factory to start an activity.</p> <p><a href="#">Intro</a> <a href="#">Paint Ratios</a></p> 	<p><i>Are students reading the introductory text?</i></p>	A	B
	<p><i>Are students reading the instructional text?</i></p>	A	B
<ul style="list-style-type: none"> <li>• <i>yes</i></li> </ul>			
<ul style="list-style-type: none"> <li>• <i>no</i></li> </ul>			
<ul style="list-style-type: none"> <li>• <i>just skimming</i></li> </ul>			
<ul style="list-style-type: none"> <li>• <i>yes</i></li> </ul>			
<ul style="list-style-type: none"> <li>• <i>no</i></li> </ul>			
<ul style="list-style-type: none"> <li>• <i>just skimming</i></li> </ul>			

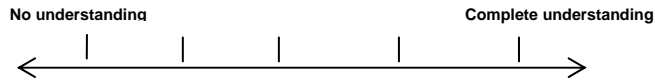
<p>recipe uses 2 parts of red and 1 part of blue, or two times as much red as blue. We call this a ratio of 2:1.</p> 	<p><i>Did the students select the forward <b>arrow key</b> (left hand screen)</i></p> <p><i>Please choose <u>one only</u> of the following options</i></p> <ul style="list-style-type: none"> <li><i>immediately</i></li> <li><i>tried to click around the screen first then selected the arrow key</i></li> <li><i>entered numbers into the box</i></li> <li><i>required prompting (*Please comment)</i></li> </ul>	<p>A</p>	<p>B</p>
	<p><i>Did the students</i></p> <p><i>Please choose <u>one only</u> of the following options</i></p> <ul style="list-style-type: none"> <li><i>immediately enter the <u>correct</u> number into the box</i></li> <li><i>appear to reread the instructions before entering the correct number in box</i></li> <li><i>discuss options then entered the correct number into the box</i></li> <li><i>enter an incorrect number</i></li> <li><i>require prompting (*Please comment)</i></li> </ul>	<p>A</p>	<p>B</p>
	<p><i>Were the students</i></p> <ul style="list-style-type: none"> <li><i>select "FILL" immediately</i></li> <li><i>reread or discussed before selecting "FILL"</i></li> <li><i>required prompting (*Please comment)</i></li> </ul>	<p>A</p>	<p>B</p>

	<p><i>Were the students</i></p> <ul style="list-style-type: none"> <li><i>select “MIX” immediately</i></li> <li><i>reread or discuss before selecting “MIX”</i></li> <li><i>select “EMPTY” to change their selection</i></li> <li><i>selected “EMPTY” in error</i></li> <li><i>require prompting (*Please comment)</i></li> </ul>	<p>A</p>	<p>B</p>
	<p><i>Were the students</i></p> <ul style="list-style-type: none"> <li><i>correct first time</i></li> <li><i>correct after some experimentation and discussion</i></li> <li><i>unable to complete without prompting</i></li> <li><i>unable to complete</i></li> </ul>	<p>A</p>	<p>B</p>
	<p><i>If the students require prompting was the problem</i></p> <ul style="list-style-type: none"> <li><i>did not read the instructions</i></li> <li><i>did not understand the instructions</i></li> <li><i>could not do the calculation</i></li> <li><i>other</i> .....</li> </ul>	<p>A</p>	<p>B</p>
<p>Well done! We have two times the amount of blue paint, so we also need two times the amount of red paint to maintain the proportion. The new ratio is 4:2, which is equivalent to 2:1.</p> <p>OK</p>	<p><i>Did the students read the feedback?</i></p> <ul style="list-style-type: none"> <li><i>yes</i></li> <li><i>no</i></li> <li><i>just skimmed</i></li> <li><i>only when incorrect</i></li> </ul>	<p>A</p>	<p>B</p>

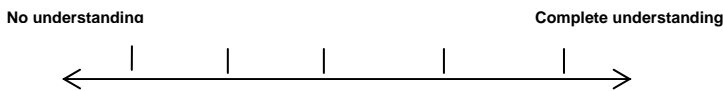
Ask the students to tell you what the feedback means in their own words.

Rate their retelling on the scale below. Please do not comment on the retelling before students have responded.

Student A



Student B



Did the students select "NEXT"?

A B

- yes
- no

**Exercise 2 (same ratio)**

Welcome to the Paint factory.  
Let's explore ratios and proportion.  
Choose where you'd like to start.

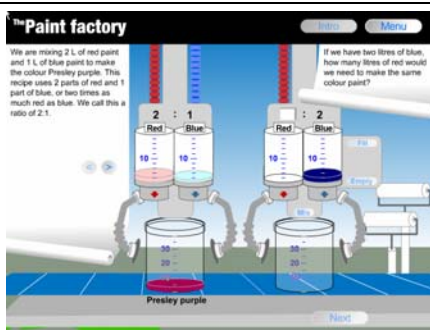
Either select the Introduction to find out about ratios and proportion, or go straight to the Paint factory to start an activity.

Intro Paint Ratios

Are students reading the introductory text?

A B


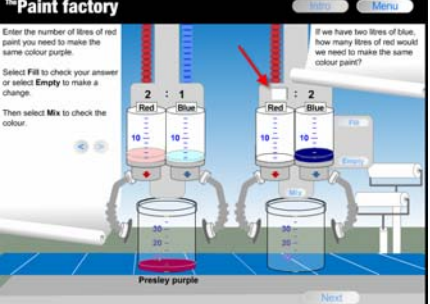
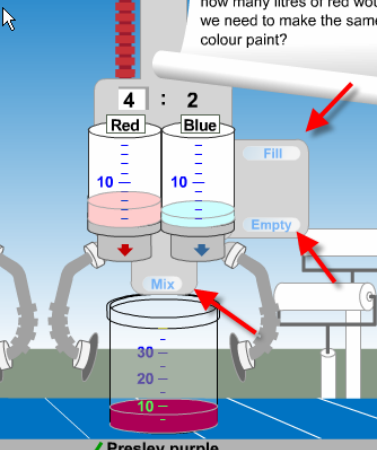
- yes
- no
- just skimming

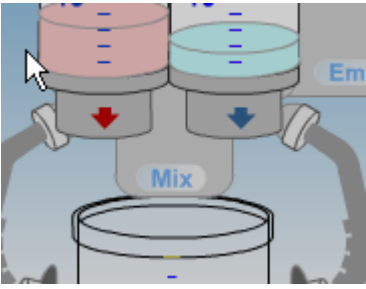


Are students reading the instructional text?

A B

- yes
- no
- just skimming

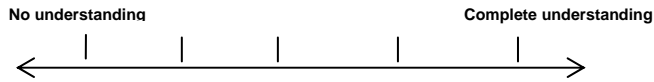
<p>recipe uses 2 parts of red and 1 part of blue, or two times as much red as blue. We call this a ratio of 2:1.</p> 	<p><i>Did the students select the forward <b>arrow key</b> (left hand screen)</i></p> <p><i>Please choose <u>one only</u> of the following options</i></p> <ul style="list-style-type: none"> <li><i>immediately</i></li> <li><i>tried to click around the screen first then selected the arrow key</i></li> <li><i>entered numbers into the box</i></li> <li><i>required prompting (*Please comment)</i></li> </ul>	<p>A</p>	<p>B</p>
	<p><i>Did the students</i></p> <p><i>Please choose <u>one only</u> of the following options</i></p> <ul style="list-style-type: none"> <li><i>immediately enter the <u>correct</u> number into the box</i></li> <li><i>appear to reread the instructions before entering the correct number in box</i></li> <li><i>discuss options then entered the correct number into the box</i></li> <li><i>enter an incorrect number</i></li> <li><i>require prompting (*Please comment)</i></li> </ul>	<p>A</p>	<p>B</p>
	<p><i>Were the students</i></p> <ul style="list-style-type: none"> <li><i>select "FILL" immediately</i></li> <li><i>reread or discussed before selecting "FILL"</i></li> <li><i>required prompting (*Please comment)</i></li> </ul>	<p>A</p>	<p>B</p>

	<p><i>Were the students</i></p> <ul style="list-style-type: none"> <li><i>select “MIX” immediately</i></li> <li><i>reread or discuss before selecting “MIX”</i></li> <li><i>select “EMPTY” to change their selection</i></li> <li><i>selected “EMPTY” in error</i></li> <li><i>require prompting (*Please comment)</i></li> </ul>	<p>A</p>	<p>B</p>
	<p><i>Were the students</i></p> <ul style="list-style-type: none"> <li><i>correct first time</i></li> <li><i>correct after some experimentation and discussion</i></li> <li><i>unable to complete without prompting</i></li> <li><i>unable to complete</i></li> </ul>	<p>A</p>	<p>B</p>
	<p><i>If the students require prompting was the problem</i></p> <ul style="list-style-type: none"> <li><i>did not read the instructions</i></li> <li><i>did not understand the instructions</i></li> <li><i>could not do the calculation</i></li> <li><i>other</i> .....</li> </ul>	<p>A</p>	<p>B</p>
<p>Well done! We have two times the amount of blue paint, so we also need two times the amount of red paint to maintain the proportion. The new ratio is 4:2, which is equivalent to 2:1.</p> <p><input type="button" value="OK"/></p>	<p><i>Did the students read the feedback?</i></p> <ul style="list-style-type: none"> <li><i>yes</i></li> <li><i>no</i></li> <li><i>just skimmed</i></li> <li><i>only when incorrect</i></li> </ul>	<p>A</p>	<p>B</p>

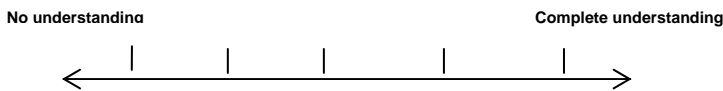
Ask the students to tell you what the feedback means in their own words.

Rate their retelling on the scale below. Please do not comment on the retelling before students have responded.

Student A



Student B



Did the students select "NEXT"?	A	B
• yes		
• no		

**Note:**

This learning object will provide students with 13 more options before the final screen.

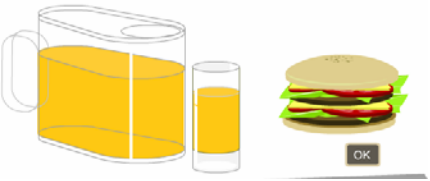
After Exercise 5 – the ratio changes to 3:1.

Did the students notice the change in ratio?	A	B
• Yes – and correct calculation		
• Yes but incorrect calculation		
• No - was incorrect the first time but read the feedback and corrected themselves		
• Read the feedback but still incorrect		
• Required prompting about the change in ratio and then entered the correct answer		
• Required prompting about the change in ratio but could not enter the correct answer. Please record the answer entered in the columns to the right.		

**Note:**

This learning object will provide students with 13 more options before the final screen.

At some stage later the ratio changes to something like 5:2 or 3:2.

<i>Did the students notice the change in ratio?</i>		A	B	
• Yes – and correct calculation				
• Yes but incorrect calculation				
• No - was incorrect the first time but read the feedback and corrected themselves				
• Read the feedback but was still incorrect				
• Required prompting about the change in ratio and then entered the correct answer			•	
• Required prompting about the change in ratio but could not enter the correct answer. Please record the answer entered in the columns to the right.				
<p>Congratulations! You've discovered a lot about ratios and proportion.</p> <p>Why not look for some examples of ratios in your everyday life: A double-burger is named because it has 2 patties while a regular burger has only 1 patty. The patties are in the ratio 2:1.</p> <p>You might try to find the perfect ratio of cordial to mix with water to make the yummiest drink. How would your drink taste if you mixed it in the ratio of 2 parts cordial to 1 part water?</p> 	<i>This is the final screen</i>			
	<b>To students</b> <b>Did you find this learning object was</b>		A	B
	too easy			
	just right			
quite hard				
<b>To students</b> <b>How did you feel about this learning object?</b>		A	B	
<input type="radio"/> Just great <input type="radio"/> Just average <input type="radio"/> Hated it				

 Please record the time that students completed the learning object : \_\_\_\_\_

### **Upon completion**

Now that students have completed the learning object, please ask the following questions:

### **Upon completion**

**✎ Students need to now individually complete the post-evaluation student worksheet.**

**✎ Students need to now complete the student questionnaire.**

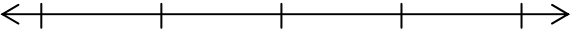
- Students can now return to class.

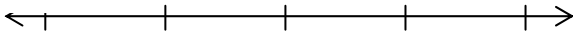
** Please complete the following questions:**

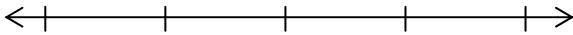
**How well overall did this prototype work for these students?**

Review each student’s general reactions to the prototype and comment on the following areas:

**Student A:**

Overall engagement	Not at all <span style="float: right;">Engaged throughout</span> 
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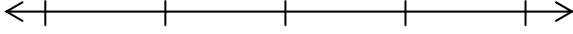
Navigation/interaction/control	Poor <span style="float: right;">Effective throughout</span> 
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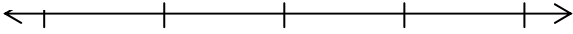
Content – reading & comprehension level	Too difficult <span style="float: right;">Too easy</span> 
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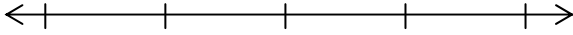
Able to complete on their own?	<input type="checkbox"/> No <input type="checkbox"/> yes with limited comprehension <input type="checkbox"/> yes
--------------------------------	---

**Comment:(\*)**  
**Did this student improve in their ability to calculate the ratio?**

**Student B:**

Overall engagement	Not at all <span style="float: right;">Engaged throughout</span> 
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Navigation/interaction/control	Poor <span style="float: right;">Effective throughout</span> 
--------------------------------	--

Content – reading & comprehension level	Too difficult <span style="float: right;">Too easy</span> 
---	---

Able to complete on their own?	<input type="checkbox"/> No <input type="checkbox"/> yes with limited comprehension <input type="checkbox"/> yes
--------------------------------	---

**Comment: (\*)**  
**Did this student improve in their ability to calculate the ratio?**

**Learning objectives:**

How well does the object meet its specified learning outcomes at this stage of development?

Students will:

Please circle where appropriate:

Students will	Not at all <span style="margin-left: 150px;">_____</span> Exceptionally Well
<ul style="list-style-type: none"> <li>Solve contextual problems that involve finding equivalent ratios.</li> </ul>	
<ul style="list-style-type: none"> <li>Solve contextual problems that involve proportional thinking.</li> </ul>	
<ul style="list-style-type: none"> <li>Construct a conceptual understanding of ratio and proportions through use of models and representations</li> </ul>	

**Additional comments:**

<p><b>Did the prototype have any technical problems?</b></p>	<p><input type="checkbox"/> No <input type="checkbox"/> Yes <i>(Please comment)</i></p>
<p><b>Did the students connect with the context?</b></p>	<p><input type="checkbox"/> yes <input type="checkbox"/> no <i>(Please comment)</i></p>
<p><b>Did the content appear over-simplified or misleading? (If so, please comment.)</b></p>	<p><input type="checkbox"/> yes <i>(Please comment)</i> <input type="checkbox"/> no</p>
<p><b>Did the content appear misleading? (If so, please comment.)</b></p>	<p><input type="checkbox"/> yes <i>(Please comment)</i> <input type="checkbox"/> no</p>
<p><b>Any other factors that contributed to the results of this evaluation e.g. sports day, 33 degrees etc</b></p>	<p><input type="checkbox"/> yes <i>(Please comment)</i> <input type="checkbox"/> no</p>

**Any other suggestions for improvements/changes, subject CONTENT, context, use of language etc?**

**😊 This is the end of the evaluation, thank you. 😊**

**Please reflect on all questions on this task list:** \* have all questions been answered?

**Please use the checklist on the next page to ensure all evaluation aspects have been covered.**

## - In-School Evaluation Checklist -

- Parent permission obtained for each student participating in the evaluation (form and letter to parents attached to 'confirmation' email)?
- Filled out Student Profile Form (attached to 'confirmation' email)
- Invoice for the replacement teacher?  
Send invoice with feedback or alternatively, fax, post or email after the evaluation.

### **Special note:**

**Parent permission forms:** If you fax or email your school's feedback, we still require the parent permission forms for students. If these aren't included in the Fax/email, please post them to us using the details on page one of this task list.

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### **Casual Relief Teacher Rates-** according to evaluation time

Less than Half Day:

\$110.00 (includes \$10 GST)  
New Zealand Schools invoice for \$100.00 only

Half Day:

\$165.00 (includes \$15 GST)  
New Zealand Schools invoice for \$150.00 only

Whole Day:

\$330.00 (includes \$30 GST)  
New Zealand Schools invoice for \$300.00 only

Please refer to the 'Invoice' document attached to your 'confirmation' email.  
Please ensure that postage and/or printing expenses do not have GST added as these are reimbursements only (i.e. GST was applied when your school purchased paper/postage envelopes).

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Thank you for your assistance. Your school's feedback together with other participating schools will be collated, reported on and provided to our developers to further enhance the prototypes.

Schools are able to access TLF published content by contacting their Contact Liaison Officer (CLO). CLO details are on our website, [www.thelearningfederation.edu.au](http://www.thelearningfederation.edu.au). Choose the [access all our online content](#) on the homepage to find out more.

**Special offer:** We would like to offer you the opportunity to use our published learning objects and digital resources with your students. Please refer to page 15 of this document for terms and conditions.

We value your contribution to the Initiative.

Regards  
Robyn Holdsworth and Kellie Rout

## - Troubleshooting -

When contacting us with technical difficulties, it's handy if you have the following information ready:

Evaluation and technical related queries:

The name of the prototype you're evaluating: \_\_\_\_\_

The platform you are working from- PC/MAC: \_\_\_\_\_

The operating system you're working from-  
Windows/MacOS/Linux/Unix: \_\_\_\_\_

The web browser you're using-  
Internet Explorer/NetScapeSafari/Opera/Mozilla: \_\_\_\_\_

The plug-ins on your computer- Flash/Shockwave/Java: \_\_\_\_\_

If possible, take a screen shot and forward this together with the above details to:

Kellie Rout  
Focus Groups Coordinator  
[kellie.rout@thelearningfederation.edu.au](mailto:kellie.rout@thelearningfederation.edu.au)  
Telephone + 61 3 9657 9735

Learning object and task list queries:

Please forward any queries you have regarding any question on this task list or a learning object specific query to:

Robyn Holdsworth  
Project Manager, In-School Evaluations  
[robyn.holdsworth@thelearningfederation.edu.au](mailto:robyn.holdsworth@thelearningfederation.edu.au)  
Telephone + 61 3 9207 9664

\_\_\_\_\_

Please feel free to contact us with queries regarding the Schools Online Initiative. Please visit our website [www.thelearningfederation.edu.au](http://www.thelearningfederation.edu.au) to check out The Learning Federation's (TLF) latest published learning objects and digital resources in the Showcase section, to download a catalogue or to find out more about accessing TLF content.

\_\_\_\_\_

Kellie and Robyn appreciate feedback about the structure of evaluations and the materials we provide.  
Please feel free to write to us.

## Published Content: request form

Again, thank you for all your time and efforts in participating in The Le@rning Federation's In-School Evaluation. We greatly appreciate your school's feedback. To further extend our thanks, we would like to offer you the opportunity to use our published learning objects and digital resources with your students.

We will send you all the content in one of the two formats below on condition that, once you have used some learning objects, you and your students complete online surveys.

Teacher survey

[www.surveymonkey.com/s.asp?u=797521186316](http://www.surveymonkey.com/s.asp?u=797521186316)

Student survey

[www.surveymonkey.com/s.asp?u=949451183627](http://www.surveymonkey.com/s.asp?u=949451183627)

Professor Peter Freebody of the University of Sydney has commenced Phase 3 of a study on the use of the learning objects in Australian and New Zealand schools. Your feedback will be incorporated into this national study. No school, teacher or student will be identified.

**If you are prepared to complete the survey, tick the box below, read the terms and conditions and sign below.** Further details about the survey will be provided with the content.

Yes, my school wishes to receive all content (digital resources and learning objects) **on DVD**

**Please complete the following:**

Content to be addressed to: Name: \_\_\_\_\_

School Name: \_\_\_\_\_

School Postal Address: \_\_\_\_\_ Suburb: \_\_\_\_\_

State: \_\_\_\_\_ Post Code: \_\_\_\_\_ School Phone Number: \_\_\_\_\_

Email address of the above person: \_\_\_\_\_

**Terms and conditions:**

**Yes, by signing below I agree to try some of the content in my school and complete the online surveys**

**Name:** \_\_\_\_\_ **Signed:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Return this form to:**

<p><b>Email details:</b> <a href="mailto:kellie.rout@thelearningfederation.edu.au">kellie.rout@thelearningfederation.edu.au</a></p>	<p><b>Fax details</b> 03 9662 9572</p>	<p><b>Post details</b> Kellie Rout The Learning Federation PO Box 177 Carlton South Victoria 3053</p>
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**Office Use Only**

CDs date sent: \_\_\_\_\_

Batch (month): \_\_\_\_\_

Comment: \_\_\_\_\_

\_\_\_\_\_