

Learning Activity: *Learning Records*

Learning Behaviours: *Learning from Example, "know when you know"*

Teacher: *BKD* **DATE:** *8 /11/05*

Class: *9D maths*

See record table - next page.

Topic - Indices

This was used to allow self-paced learning with increased responsibility on them. The sheet was structured so they did more and more without guides. The process was for them to work across one row at a time with it being signed off (with a little test) by me. Before they started I went around to each group of 4 and questioned them on why they thought they were being asked to do it this way i.e. went through the table with them.

- check out / read the example on the page listed and discuss it within their group
- write the idea in their own words
- generalise the idea (maths language)
- chose / record problems they need to do so that they know the idea (also record any homework they chose to do)
- explain some problems to a partner
- do a little test with me

Page	Example	“in words”	Generalization	Exercise	Problems (class)	Problems (h’work)	Explained	Test
P38	$2^5 \times 2^4 = 2^9$	When multiplying numbers with the same base number we <u>add</u> the indices.	$a^x \times a^y = a^{x+y}$	Ex 2B				
P38	$2^5 / 2^3 = 2^2$ or $\frac{2^5}{2^3} = 2^2$	When dividing numbers with the same base number we	$a^x / a^y = a^{\dots\dots\dots}$	Ex 2B				
P40	$(2^3)^4 = 2^{\dots\dots}$	When raising a number with a power to a further power we		Ex 2C				
P40			$a^0 = 1$	Ex 2C				
P42	$(2 \times 3)^5 =$			Ex 2D				
P42	$(4 / 5)^2 =$			Ex 2D				
P43	$2^{-3} = 1 / 2^3 = 1/8$			Ex 2E				
P46	$4^{1/2} =$			Ex 2F				

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Discussion Tool: *eg. Role play / Discussion / Journal Writing*

This sheet was used for students to complete at the end of the unit and stick in their journal. Their responses were collated and formed the basis of a whole class discussion (which was a poor one - see my thoughts).

Learning Journal for Indices:

It is important that you can -

- 1. “Learn from an example” - you did this by trying to follow an example in the book and discussing it with your group.**

How did you go - where you able to learn by yourselves from examples?

Why do you think I wanted you to learn this way rather than just show you myself?

- 2. Write up an idea in your own words**

Why do you think I asked you to do this?

Did it help your understanding?

Did you look at these in your test? Why?

- 3. Generalise an idea - we do this to summarise a lot of similar examples.**

Why do you think this is important in maths to be able to do this?

- 4. “Know when you know something”**

- a. by allowing you to choose which / how many problems you need to do until you know something**

- b. testing / improving understanding by explaining to someone else**

- c. you had the opportunity to record any extra work (homework) which shows you were taking responsibility for your own learning**

Is it effective for you to choose how many problems you do - i.e. are you getting better at knowing how many and which ones to choose?

Did you choose to do any homework? Why?

Does explaining to someone else help you know if you really understand an idea?

- 5. Improve on parts that need it and that you don't quite understand.**

We used the small tests to check your understanding and fix up parts you didn't get right

Did you have to go back and fix anything after a test?

Did you like having each idea checked as you went along? Why?

Student Comments

- 1. “Learn from an example” - you did this by trying to follow an example in the book and discussing it with your group.**

- a. How did you go - where you able to learn by yourselves from examples?**

Hard at first and I needed extra help at times

It was good to get through a row at a time

It was hard because you didn't know if you were right

Sometimes but when I didn't get it ... helped

No I didn't do very well

Yes but it was hard and I didn't know if I was learning it the right way

Yes but I didn't always get the example

b. Why do you think I wanted you to learn this way rather than just show you myself?

So we don't depend on others for answers and we can learn in our own way

Because people learn in different ways

So it gets stuck inside my head better

To annoy us

To learn in our own way and at our own speed

So we can work out things for ourselves

To see if we can teach ourselves and each other

So we could understand it ourselves and show you

2. Write up an idea in your own words

a. Why do you think I asked you to do this?

Helps us understand

So we could learn and teach ourselves

If it is in our own words we will understand it better

b. Did it help your understanding?

A bit yeah

Yes 7

No 5

c. Did you look at these in your test? Why?

Yes on the ones I wasn't sure about

No because it wouldn't have helped

Yes because they had examples

Yes because I could make sure it was correct

Yes but it didn't help

Yes I did - it was useful

3. Generalise an idea - we do this to summarise a lot of similar examples.

a. Why do you think this is important in maths to be able to do this?

So we can understand harder maths when we get older

4. "Know when you know something"

a. by allowing you to choose which / how many problems you need to do until you know something

b. testing / improving understanding by explaining to someone else

c. you had the opportunity to record any extra work (homework) which shows you were taking responsibility for your own learning

Is it effective for you to choose how many problems you do - i.e. are you getting better at knowing how many and which ones to choose?

Saves wasting time when you know it

Yes as I think I am getting better slowly

No because I get lazy, do some and give up

Yes as there is no point doing more questions that you understand

Yes but I still do most of them just in case

Yes because you can choose easy or hard questions

Did you choose to do any homework? Why?

Yes, I was falling behind and needed extra practice

A little study for test

Yes so I could try and understand

Yes so I would do better

No 5

Yes 11

Does explaining to someone else help you know if you really understand an idea?

Kind of

Yes, helps understanding, find mistakes or gaps in your learning

I think it is supposed to but I don't think it does

*Sometimes if I can't always explains it so others understand
Yes ... talks to me in an easier way to learn
Not any better than doing it in my head
Not really
It does - a lot
No 5
Yes 11*

5. Improve on parts that need that you don't quite understand

- we used the small tests to check your understanding and fix up parts you didn't get right
- Did you have to go back and fix anything after a test?

Yeah, once

Yes

I had to go back and look at other examples

-Did you like having each idea check as you went along? Why?

Yes I did but I still forgot lots in the test

Yes but not like that

Yes so I knew I did understand it

Not really

Yes because you then knew it was right

Teacher Journal

What is my intention? What do I want to achieve?

To have them work on

1. "Learn from an example" - you did this by trying to follow an example in the book and discussing it with your group.
2. Write up an idea in your own words
3. Generalise an idea - we do this to summarise a lot of similar examples.
4. "Know when you know something"
 - a. by allowing you to chose which / how many problems you need to do until you know something
 - b. testing / improving understanding by explaining to someone else
 - c. you had the opportunity to record any extra work (homework) which shows you were taking responsibility for your own learning
5. Improve on parts that need that you don't quite understand
 - we used the small tests to check your understanding and fix up parts you didn't get right

What happened?

They seemed more motivated over a longer period of time - students found the little tests positive. Their responses in the journal sheet tended to be "one liners" as recorded and not as deep as I would have liked. The whole class discussion was poor - we did it in place of a

planned ICT activity after a series of computer system problems, so not good timing but I am thinking it big discussions (about 10 questions) is too much for the kids - intend doing all learning discussion work in small pieces on a "more when it is happening" basis.

What was my role?

Positive reinforcement given for the above but also GLBs previously focussed on eg getting started / persevering... I did give explanations of the textbook examples to students having trouble and those who were successful in a one of the small tests but in the main they work out the ideas for themselves.