

# Guidance to presenting to others

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Dr Frost Learning is a registered charity in  
England and Wales (no 1194954)

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# Set up for presenting

Thank you for sharing [www.drfrost.org](http://www.drfrost.org) with other teachers! This guide may give you some ideas on how best to explain the functionality of the platform, and key points to make.

If you're presenting to teachers at other schools, anonymise student names by clicking your name at the top right → Account Settings → Anonymise/Demo Mode.

Important general points to get across:

1. Dr Frost Learning is a charity.
2. Our complete skill list covers mathematical skills across all major curriculums both in the UK and internationally.
3. The platform is mostly built around question-answering, so it's important to show examples of both Questions Generators and Exam questions.
4. Schools require a subscription for more than one teacher to use the platform. Our lesson resources will always be free for teachers to download.

# Home dashboard

- Make clear this is what teachers see when they first log in.
- Point out the links in “work” and “progress data” which provide access to the main functionality of the site, which is duplicated in the top menu, and the notification feed on the right.
- Point out the ‘help and training’ at the top right which links them to training sessions and a starter guide for teachers. Students get their own separate guide.

Menu  Q M McDonagh

 Ms M McDonagh  
Ravenpuff School

School Rank **1767<sup>th</sup>** Points This Year **3,098** School Engagement **1/6** Help & Training

**Work** My Worksheets View All Tasks

- ✓ Expanding brackets 0/5 All of Further Maths, Acke, Gnats (test,Charms), Bones, Maisy (test), No due date
- ✓ parallelogram hwk 0/5 All of Further Maths, Acke, Gnats (test,Charms), Bones, Maisy (test), No due date
- ✓ surface area of a cylinder 0/5 All of Further Maths, Acke, Gnats (test,Charms), Bones, Maisy (test), Due Last week

**Set a Task**

**Progress Data** View Student Progress

Week Summary Top Students

Tasks set	2
Questions answered	27
Independent questions	16

**Notifications**

- 💡 The new DF Index was launched on 27th January. We now have over 5000 subskills covering various curricula. Click here to see the entire list and the mappings to old skill codes.
- 💬 You received some feedback from a student regarding their work.  
20 HOURS AGO  
Expanding brackets
- 📝 Ms M McDonagh set a task to All of Further Maths, Acke, Gnats (test,Charms), Bones, Maisy (test).  
20 HOURS AGO  
Expanding brackets
- 💬 You received some feedback from a student regarding their work.  
22 HOURS AGO  
parallelogram hwk
- 📝 Ms M McDonagh set a task to All of Further Maths, Acke, Gnats (test,Charms), Bones, Maisy (test).  
22 HOURS AGO  
parallelogram hwk

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# Setting Tasks by creating a worksheet

- Go to Work → Set a Task. Explain briefly what the 4 options allow you to do.

**Select By Topic.** Make clear the difference between **Question Generators** and **Exam Skills**. Explain that a skill (e.g. Expanding brackets) has been broken down into question generators (e.g. Expand a single bracket with an integer on the front).

- Emphasise the aspect of **choice**, as this is a major advantage of our platform over similar products. Students can repetitively practise very specific question types, potentially with an accuracy requirement for completion, but they can also get broader practice with Exam Questions. And teachers can choose the questions, or let the system choose for them based on the needs of the student.
- Start by choosing **Question Generator** questions. Potential examples: (a) KS3/4 Expanding Brackets to show scaffolding and progression through the skills (b) KS3/4 Transformations → Rotate a shape to show inbuilt Desmos (c) KS3/4 Probability → Form an equation 463e which has very comprehensive answer explanation
- Point out the ‘**Example**’ and video icons. Click one of the video icons and mention that the videos are purposely short (typically 3-4 minutes) and specific to the kind of question.
- Use the **Have a Go** option (and get an answer right to demonstrate how the system responds). This demonstrates the experience for students and it’s important for teachers to see this. Point out the video button at the top which students can use if stuck.
- Select a mixture of key skills and exam practice and demonstrate the ‘fixed questions’ option. Once this directs you to the worksheet interface, point out that this generated a ‘template’. Show it is intuitive (regenerate, delete, change the order of a question, change the difficulty on the left, filter to an exam board where appropriate) and show that we could potentially make a **custom template** with exam board filters and so on. Briefly explain setting options and point out the worksheet can be downloaded to word, with answers included.

The screenshot illustrates the 'Set a Task' feature of the platform. It shows two main options: 'By Topic' (selected) and 'Past Papers'. The 'By Topic' section displays a list of questions with video and example icons. The 'Past Papers' section shows a list of exam questions. A sidebar on the left shows a tree structure of topics under 'Your selection'. The 'Have a Go' section shows a math problem about Rita's marbles with a correct answer and a 'Watch Worked Example' button. The 'Answers' section shows the equation  $k(k-1) = 6$  with steps  $k(k-1) = 6$ ,  $k^2 - k = 6$ , and  $k^2 - k - 6 = 0$ .

# Set a task by choosing flexible questions

- Go to Work → Set a Task. Select By Topic but this time only select questions from Question Generators as flexible tasks cannot take a mixture of Exam Questions and Question Generators. Ensure you include questions from different difficulty levels.
- Click 'Set a task' and choose 'Flexible questions'. This is the option which takes you straight to setting the task without seeing the questions first, so point out that it's a good idea to click on the example of each question type and regenerate it a few times so you have a fair idea of the type of questions the students will get give.
- Go through the two options 'Fixed number of questions' and 'Accuracy required to finish'. The important points to emphasise are
  - fixed number of questions with differentiation will move the learner on to the next question as soon as they are successful with it. If they keep getting the question wrong, they will get more of that type of question until they have got it right. The system cannot differentiate unless there are questions selected from different difficulty levels.
  - Accuracy required to finish therefore gives you the teacher more control over how many questions a student needs to get correct before the system moves them on.
  - A huge benefit of setting questions via 'flexible questions' is that you can allow the student to re-attempt the task and try for a better mark, whilst also allowing the student to learn from their mistakes. i.e. if they get an answer incorrect, they will see the full written solution rather than having the answer concealed (as is the case when setting a task that can be reattempted from a fixed questions worksheet).

**Set a Task**

Set task for:

Skills:

Custom Label: (optional)

Due:  No Due Date

Set:

**Fixed number of questions**  
Either the system differentiates between the subskills in your selection (giving them harder or easier questions based on their changing mastery), or interleaving between all the skills in your selection.  
 questions with differentiation

**Accuracy required to finish**  
We'll interleave between the subskills within your selection. Students need to achieve the required accuracy at each subskill.

**Options**

Warn when Wrong:  Yes

Prevent Reattempts:  Yes

Require Working:  No

Require Feedback:  No

Time Limit:

Hide skill names:  No

**Set a Task**

Set task for:

Skills:

Custom Label: (optional)

Due:  No Due Date

Set:

**Fixed number of questions**  
Either the system differentiates between the subskills in your selection (giving them harder or easier questions based on their changing mastery), or interleaving between all the skills in your selection.

**Accuracy required to finish**  
We'll interleave between the subskills within your selection. Students need to achieve the required accuracy at each subskill.  
 out of the last  questions correct on each subskill, without interleaving.

**Options**

Warn when Wrong:  Yes

Prevent Reattempts:  Yes

Require Working:  No

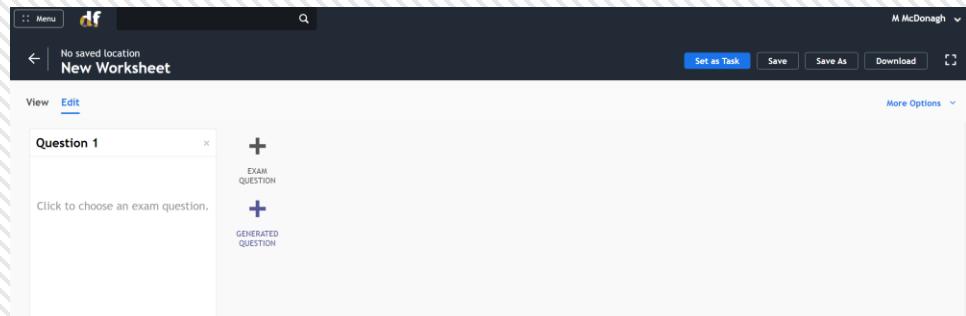
Require Feedback:  No

Time Limit:

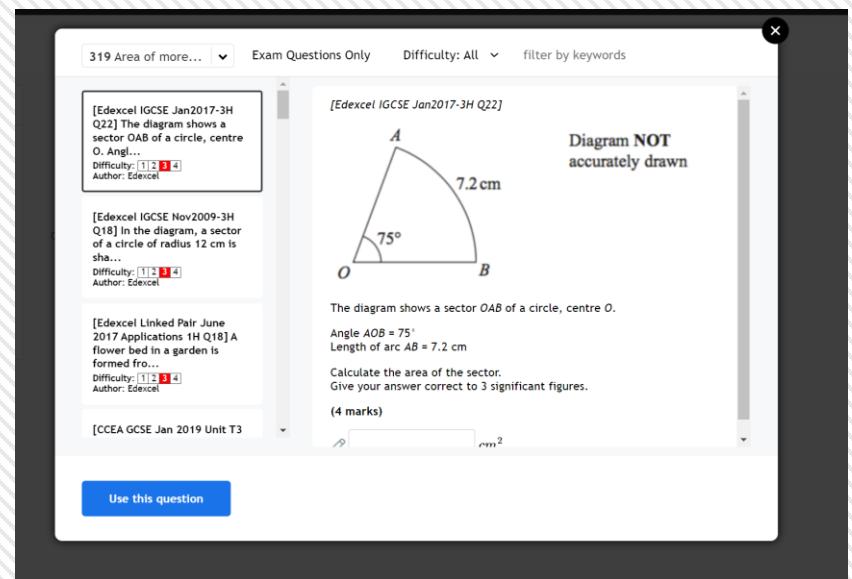
Hide skill names:  No

# Building a custom-made worksheet

- From the home dashboard click **Set a Task** and select **'Choose Questions'**.
- Add an Exam Skill question, mentioning the exam board filter, difficulty filter and topic filter. Some questions also have the option to 'use all parts of this question'.
- Add a Key Skill question, show you can regenerate it.
- Save the task, possibly mentioning how you can save in different directories, such as the shared area and then click **'Set as Task'**. You would have already shown a dialog similar to this but you may want to mention the 'use exam marking' option, and that if you 'require working', teachers could then theoretically allocate partial marks based on students' drawn working on their side whiteboard.
- Mention the **Export to Word** option, and quickly demonstrate if time, mentioning the automatically generated mark scheme.
- Mention the **'Live!'** option, although you will unlikely have time in your demo to show.



The screenshot shows the Dr Frost Learning interface for creating a new worksheet. A modal window titled 'Question 1' is open, prompting the user to 'Click to choose an exam question.' It includes two buttons: '+ EXAM QUESTION' and '+ GENERATED QUESTION'.



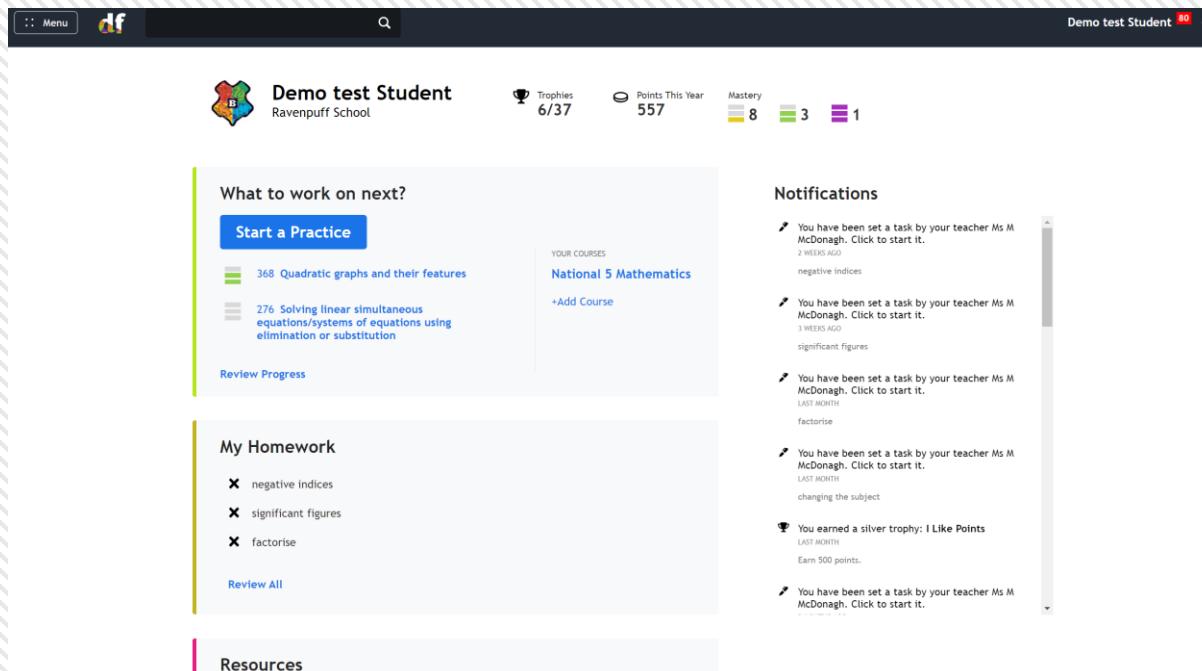
The screenshot shows the Dr Frost Learning interface displaying a list of exam questions. One question is selected, showing a diagram of a sector OAB of a circle with a radius of 7.2 cm and a central angle of 75°. The text states: 'Diagram NOT accurately drawn'. The question asks for the area of the sector, given the angle and radius, and specifies that the answer should be correct to 3 significant figures. A mark scheme of '(4 marks)' is shown. At the bottom of the screen, a large 'Use this question' button is visible.

# Setting Tasks – Past Papers

- Go back to **Work** → **Set a Task. Choose Past Papers**
- Explain we have past papers from major exam boards as well as the UKMT
- Choose a past paper (perhaps Edexcel GCSE 9-1, point on “last third” papers then select a full paper)
- Click **edit** and show you can delete questions if they've not yet been covered.
- Click **more options** → **try as a student**. Explain the student can complete in any order. Choose a question with a diagram and use the pen icon to show how a student can write working and copy the diagram to annotate. Point out the video link at the top.
- Go back and click **more options** → **generate shadow paper**. Briefly show the editable features. Emphasise the benefits of using this feature for missing students, regular exam practice etc.

# The student view and courses

- Go to your name on the top right and select ‘View as Student’ then choose a class from the drop down. Ideally choose the class you have just set the task to.
- Point out where the student’s homework is located and start a task. Answer a few questions then press ‘continue later’ and show how a student can go back into their tasks, leave comments or press ‘review’ to find more questions of this type.
- If the class has been allocated a course, click on this and show how a student can navigate through a course and find relevant questions to practice. Highlight that their recent accuracy shows against questions they have tried in the past and these indicate to students what to focus on for a practice.
- Show how a student can select exam questions and filter the exam board and difficulty if desired.



The screenshot shows the Dr Frost Learning student dashboard. At the top, there is a dark header with a 'Menu' button, a 'df' logo, a search bar, and a 'Demo test Student' dropdown with a notification badge. The main content area has a light gray background.

**User Profile:** Demo test Student (Ravenpuff School) with a house icon. Trophies: 6/37. Points This Year: 557. Mastery: 8 (yellow), 3 (green), 1 (purple).

**What to work on next?**

- Start a Practice** button.
- 368 Quadratic graphs and their features
- 276 Solving linear simultaneous equations/systems of equations using elimination or substitution

**Review Progress** link.

**My Homework**

- negative indices** (marked with an 'X')
- significant figures** (marked with an 'X')
- factorise** (marked with an 'X')

**Review All** link.

**YOUR COURSES**

**National 5 Mathematics**

**+Add Course** link.

**Notifications**

- You have been set a task by your teacher Ms M McDonagh. Click to start it. (3 WEEKS AGO) negative indices
- You have been set a task by your teacher Ms M McDonagh. Click to start it. (3 WEEKS AGO) significant figures
- You have been set a task by your teacher Ms M McDonagh. Click to start it. (LAST MONTH) factorise
- You have been set a task by your teacher Ms M McDonagh. Click to start it. (LAST MONTH) changing the subject
- You earned a silver trophy: I Like Points (LAST MONTH) Earn 500 points.
- You have been set a task by your teacher Ms M McDonagh. Click to start it.

**Resources** link.

# Progress Data from a task

Log off and log back in to your teacher account.

- Go to **Menu** → **Progress data**
- Select a class and click on a recent task (ensure you are working in anonymise/demo mode!).
- Explain red is incorrect, orange means correct on a further attempt and green means correct first time. A brown/orange means the student got the question correct after a ‘nudge’ on their first attempt. You can see number of attempts for each student on the left.
- Click **view** on a question where students have had varied success.
- Explain F means some feedback has been left. Click on a cell with an F and show how you can respond to feedback.
- Switch to **By Topic** view. You may want to have picked a task which has a variety of topics. Explain this is particularly useful if the teacher has set flexible questions as you still get insights into which topics have been answered. Point out the questions to the most left are the questions which have been answered the least well across the class and how a teacher can take the code for the question and quickly search for more questions of this type.
- Switch to **By Question** view and explain how effective this is in identifying common misconceptions, but also for seeing students’ variants of correct answers (particularly when algebraic!). Mention that our system automatically determines algebraically equivalent variants where permitted. Point out “use feedback for all who got this wrong”.
- Click on **marksheet** and select a class. Explain a red L box means late, a white task means started but not completed. Completed tasks are coloured green to red to tell you at a glance how much was correct.

The screenshots illustrate the digital marking interface for a class of 15 students. The interface includes a sidebar with navigation links: Tasks, List, Marksheet, Student Progress, Leaderboards, and Feedback.

**Top Screenshot (Full Breakdown View):** This view shows a grid of student names (Ar. Arthy, Bellutti, Rassnam, Beran, Simegan, Butler, Havin, Ericson, Terepat, Fitch, Rehan, Froset, Josh, HAGUE, Afroz Ata Uli Hadi, Hardj, Kipshan, Ibram, Marcus) against 15 questions (Q1 to Q15). Each cell in the grid contains a colored checkmark indicating the student's status: green for correct first attempt, orange for correct on a further attempt, and red for incorrect. The number of attempts is also displayed in the student column.

**Middle Screenshot (Question 12 View):** This view focuses on Question 12, which asks to simplify  $15e^2f / 25ef^3$ . It shows student responses in a grid, with a legend for student initials: A (green), B (orange), C (red), D (brown), E (yellow), F (grey), and G (light green). It also shows a list of student answers and a feedback section for incorrect answers.

**Bottom Screenshot (Marksheet View):** This view shows a grid of student names against various tasks and markers. The markers include: Late (red L), Started (white), Completed (green), and Not Started (yellow). The grid also includes columns for student names, task descriptions, and numerical values.

# Lesson Resources

Go to Menu → Lesson Resources. Point out the collections and enrichment area.

Search through lessons on the left hand drop down (Secondary, Algebra has plenty of new resources to showcase). Choose a topic e.g. Formulae and Simplifying Expressions and open up a lesson along with the accompanying exercises.

Point out the 'how to use these slides' page and the teacher notes at the bottom of most slides.

Emphasise the slides are well scaffolded, with the idea teachers can omit slides if desired and there's plenty of formative assessment throughout the learning content.

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Recently Published

- 2 DAYS AGO Secondary | Algebra | Formulae and Simplifying Expressions Dividing Algebraic Fractions
- 6 DAYS AGO A Level | Statistics | Data Presentation and Interpretation Understanding & Calculating Skew
- Secondary | Algebra | Formulae and Simplifying Expressions Multiplying Algebraic Fractions
- A Level | Further Statistics | Hypothesis Tests Non-Parametric Tests
- Secondary | Algebra | Changing the Subject Changing the Subject of a Linear Formula Involving Brackets and Fractions
- 2 WEEKS AGO A Level | Pure Mathematics | Vectors Solving Vector Problems by Introduction of a Scalar
- A Level | Statistics | Correlation

Collections

- 'Full Coverage' GCSE
- 'Full Coverage' IGCSE
- 'Full Coverage' A Level
- Pearson Edexcel A Level Maths Slides
- Pearson Edexcel A Level FM Slides
- Royal Meteorological Society
- Virtual Calculators

Enrichment

- UKAT Advice for Schools
- UKAT Database
- Orbridge
- Year 12 Zeta Club

## Test Your Understanding

Show all solutions

Given that  $a = -3$ , calculate the following:

1	$6a$	?	6	$6 + a^2$	?
2	$6a - 2$	?	7	$(2 - 6a)^2$	?
3	$2 - 6a$	?	8	$2 - 6a^2$	?
4	$6a^2$	?	9	$-6a^2 + 2$	?
5	$(6a)^2$	?	10	$6b - 2$	?

What is the difference between questions 4 and 5? How do I know what to do first?

Question 10 isn't possible! We don't have a value for  $b$ , so we cannot calculate  $6b - 2$ .

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MATHS

## Spot the Mistakes

What is the value of  $3x^2 - 2$  when  $x = -4$ ?

Logan and Abdi have two different answers - but both are incorrect!  
What have they done wrong?

Logan should use brackets to calculate the power, as Abdi says!

$$3(-4)^2 - 2 \\ = 3(-16) - 2 \\ = -48 - 2 \\ = -50$$



I typed  $-4^2$  into my calculator; it said the answer was  $-16$ .

$$3(-4)^2 - 2 \\ = (-12)^2 - 2 \\ = 144 - 2 \\ = 142$$

But... Abdi should square  $-4$  first, then multiply by 3.

No, when you square a negative number, the answer is positive. For example,  $(-12)^2 = 144$ .



What is the correct answer?

$$3(-4)^2 - 2 \\ = 3(16) - 2 \\ = 48 - 2 = 46$$

Dr Frost  
MATHS

## Integer Substitution with Powers and Roots: Exercise

1 Given that  $x = 6$ , work out the following:

- a  $x^2$
- b  $\frac{x^2}{3}$
- c  $-x^2$
- d  $30 - x^2$
- e  $2x^2$
- f  $4\sqrt{2}$
- g  $\sqrt{3x}$
- h  $\sqrt{2x - 2}$
- i  $\sqrt{x^2}$
- j  $\sqrt{4 - 3x^2}$

2 Work out the value of....

- a  $y^2 + 11$  when  $y = -2$
- b  $3x^2 + 3$  when  $x = 7$
- c  $(2m + 5)^2$  when  $m = -10$
- d  $\sqrt{2p}$  when  $p = -32$
- e  $2\sqrt{3y - 4h}$  when  $q = 3, h = -4$
- f  $\sqrt{4y} - \sqrt{-2x}$  when  $y = 16, x = 4$

3 What value of  $x$  would make the following equations equal 0? Choose from one of the four options available for each question.

- a  $\sqrt{2x} - 4$  A:  $x = 1$  B:  $x = -1$  C:  $x = 2$  D:  $x = -2$
- b  $2\sqrt{y} - 16$  A:  $x = 4$  B:  $x = -4$  C:  $x = 64$  D:  $x = -64$
- c  $x^2 + x - 6$  A:  $x = 1$  B:  $x = 2$  C:  $x = 3$  D:  $x = 4$
- d  $x^2 + 9x + 20$  A:  $x = -1$  B:  $x = -2$  C:  $x = -3$  D:  $x = -4$
- e  $49 - x^2$  A:  $x = 7$  B:  $x = 49$  C:  $x = 0$  D: Impossible
- f Questions c - e have another solution that make the equation equal to 0. Find the other solution for each question.

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