**Filling a Film Studio**

How can you maximise revenue through occupancy?

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| Year Group | 9 | Subject | Maths | Employer Link | Pinewood Studios |

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| Curriculum Objective(s) | * To solve problems involving percentage change
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| Careers Objective(s) | * To highlight the relevance of Maths to future career paths
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| Essential Skills Development | * Staying Positive, Leadership, Speaking, Problem Solving (build these skills [here](http://skillsbuilder.org/hub))
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| Task Overview and Connection to Employer | Calculating percentages is a key mathematical skill and understanding how to interpret this information is an important skill for students to develop. The objective of this lesson is to see the importance of calculating percentages in solving real problems and to be able to extract meaning from different percentages calculated. Students will explore how a commercial manager at Pinewood studios would use percentages to ensure targets are met and maximise revenue.  |

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| Essential Prior Learning Checklist | * Students will be able to represent a value as a percentage of another and percentage change
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| Context: Where might this task be sequenced within the learning journey?  | This lesson could be placed at the end of a Mathematics unit on Percentages |

Lesson Structure

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| Phases (with indicative times) | Main Activities | Key Questions | Teacher Notes (inc suggestions for support & challenge) | Resources Required |
| 1. Introduction: (10 -15mins) | Pinewood studios is introduced through a short video which includes a tour of the offices and stages. The role of a commercial director is introduced through James, the commercial director at Pinewood. Play students the video so they are able to visually see the scale of the stages and are able to put a face to the name and role.Students then test their knowledge of the importance of the role through a group discussion.  | * What do you know about Pinewood studios?
* Why is James’ role so important to the success of the company?
* What do the words: Occupancy; Footprint; Revenue and Production mean?
 | Students may not previously be aware of Pinewood studios but at the end of this section, students need to have a clear understanding of the company and the part of the role as commercial director which focuses on Revenue and stage occupancy and why this is so important, eg. if stages are empty, Pinewood will not be making any money! After watching the video highlight the keywords that have been used and talk through these definitions.* Support - teachers can work with the whole class to gather ideas, therefore supporting students to understand the role quickly. Print definitions of keywords for students to refer to throughout the task.
* Challenge - class can work as individuals to think about the role and why it is important.
 | Slides 1 - 3 (Video embedded)Print keywords if required  |
| 2. Exploring the Context (5 - 10mins) | Play video 2 to make links between the importance of making sure each stage is booked and the impact on revenue.  | * Why is it important for Pinewood Studios to have all the stages booked?
* What similarities or differences do you notice about the stages we’ve seen in this video?
 | Students should identify that all the stages are not equal in size. Students should identify that revenue; and therefore the success of Pinewood is directly linked to the bookings of stages. | Slide 11  |
| 3. Setting the Brief (10 mins)Task 1: 5 mins (lesson 1 of 3) Task 2: 5 mins (Lesson 2 of 3) | Students are given the role of commercial manager. They will work in small groups through a series of tasks which would be part of the role of commercial manager. Task 1: How did we do in January? Task 2: Planning for the future  | * How do we represent two values as a percentage? Eg. How would we represent 42 out of 50 as a percentage?
* What is the total possible occupancy of each stage in days?
* How would we calculate the total possible occupancy of each stage in sq ft?
 | Students need to be organised into small groups. Create mixed ability groups to allow students to support one another. Support: re-cap mathematical skills required to represent one value as a percentage of another. Challenge: For more able classes provide students with the tables; and written instructions of each of the slides and provide no other teacher input. | Sides 13 - 16  |
| 4. Working on the Task (70 mins)Task 1: 30 minutes (Lesson 1 of 3)Task 2: 40 - 60 minutes (Lesson 2 or 3) | Task 1: How did we do in January? Students are asked to calculate if the stage booking target was met in January 2021. Students will use two different methods to complete this calculation and asked to evaluate each method at the end. Task 2: Planning for the future Students will be asked to look to August 2021 and calculate percentage occupancy based on current bookings; the percentage change required to meet the August target and decide which productions to book in order to meet their target.  | * For Task 1: Do both methods give us the same answer?
* For Task 1: Why might one method be better than the other?
* For Task 1: Do these methods give us enough information to evaluate our success?
* For Task 1: If each stage costs a different amount to hire, can we use this information to calculate the revenue?
* For Task 1: What was the percentage occupancy for each individual stage?
* For Task 1: Compare the two methods, what do you notice about your answers? Why has this happened?
* For Task 1: Did the commercial team meet their target for January?
* For Task 2: What occupancy percentage do we currently have?
* For Task 2: By what percentage do we need to increase this to reach target?
* For Task 2: What productions from the pipeline, and what combination should we target to best use the available space?
* For Task 2: What occupancy would each of these scenarios deliver in August?
* For Task 2: How much extra revenue in 2021 will each scenario deliver?
 | Task 1 Students will work through each stage of task 1. Support with mathematical methods to be displayed for each stage of the task. Support: Talk through the calculations for the first stage before asking students to complete the rest of the table. For Task 2: Students will need to start by working out percentage occupancy from current bookings. Students will then need to follow the steps on slides 28. Support: work through step 1 and 2 as a class to rule out pipeline projects that can be immediately ruled out to narrow down options. Provide students with multiple copies of the ‘current August occupancy’ so students can draw on these and work out which combinations would be best.  | Slides 16 - 28Print Task 1 bookings and (worksheet a) on google sheet Print Task 2 current bookings; worksheet a; pipeline projects; worksheet b  |
| 5. Sharing Outcomes (40 mins)(Lesson 3 of 3)  | Students will present to the rest of the class which productions they chose to make best use of the possible space. Students should state what percentage occupancy their chosen productions will have; and the percentage change they have achieved (both for occupancy and revenue). Once all groups have presented and one group has been identified as the ‘winning group’ that have successfully maximised occupancy; play video 4. As a class you must now work to create a solution to this problem.  | * What percentage occupancy does your proposal give?
* Does your proposal meet the occupancy target?
* What percentage increase have you managed to achieve?
* Which group has achieved the greatest percentage change?
 | Students will present their final solutions to the rest of the group. Give each group a clear time limit to present.  | Slides 30 - 32 |
| 6. Feedback and Celebration (5 - 10 mins) | Congratulate the winning group who managed to maximise the studio occupancy! Students should reflect upon the process and the importance of using percentages to evaluate the success of the team and helping to meet targets. | * How important is it to be resilient?
* What other challenges do you think might happen when a commercial manager is trying to maximise occupancy?
* What did you find most challenging about this task?
 | Facilitate a class discussion to consider these key questions. Give students an opportunity to reflect on the importance of calculating these percentages to make sure the team meet their targets. | Slides 33 |