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| **DAILY LESSON PLAN** **MATHEMATICS FORM 3** |
| **CLASS** |  | **DAY** | Choose an item. |
| **WEEK** | Choose an item. | **TIME** |  |
| **DATE** | Click or tap to enter a date. | **DURATION (minutes)** |  |
| **LEARNING AREA** | Number and Operations |
| **UNIT/TOPIC** | Indices |
| **CONTENT****STANDARDS**  | 1.1 Index Notation | **LEARNING STANDARDS**  | 1.1.1, 1.1.2 |
| **LEARNING OBJECTIVES** | **At the end of learning, students will be able to:*** Represent repeated multiplication in index form and describe its meaning
* Rewrite a number in index form and vice versa
 |
| **ACTIVITY** | **Starter:**Teacher explains the concept of index form and introduce the term “base” and “index”. Teacher asks the students to write repeated multiplication in the form *an*.**Activity:**1. Students in pairs and in turn need to change the repeated multiplication on the card to a number in index form and vice versa in a fixed time.
2. Each pair of students uses various methods to present the results in step 1.

Index card**Closure:**Teacher discusses all the answers. |
| **REFLECTION** | [ ]  Students were able to achieve the learning objectives successfully.[ ]  Students were able to achieve the learning objectives with guidance.[ ]  Students were not able to achieve the learning objectives. |

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| **WEEK** | Choose an item. | **TIME** |  |
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| **LEARNING AREA** | Number and Operations |
| **UNIT/TOPIC** | Indices |
| **CONTENT****STANDARDS**  | 1.2 Law of Indices | **LEARNING STANDARDS**  | 1.2.1, 1.2.2, 1.2.3 |
| **LEARNING OBJECTIVES** | **At the end of learning, students will be able to:*** Relate the multiplication of numbers in index form with the same base, to repeated multiplications, and hence make generalisation
* Relate the division of numbers in index form with the same base, to repeated multiplications, and hence make generalisation
* Relate the numbers in index form raised to a power, to repeated multiplication, and hence make generalisation
 |
| **ACTIVITY** | **Starter:**Teacher asks students to write the calculation $3^{3}×3^{5}$ in expanded form. That is, $3^{3}×3^{5}=(3×3×3)×(3×3×3×3×3)$Then teacher asks students to see how many times the number 3 is multiplied by itself.**Activity:**1. Teacher provides guidance to the students on how to carry out the activity in textbook, pp. 6 & 7, and hence make generalisation $a^{m}×a^{n}=a^{m+n}$.
2. Teacher provides guidance to the students on how to carry out the activity in textbook, pp. 8 & 9, and hence make generalisation$a^{m}÷a^{n}=a^{m-n}$.
3. Teacher provides guidance to the students on how to carry out the activity in textbook, pp. 10 & 11, and hence make generalisation$\left(a^{m}\right)^{n}=a^{mn}$.
4. Teacher asks students to do exercises in the workbook and textbook.

**Closure:**Teacher discusses all the answers. |
| **REFLECTION** | [ ]  Students were able to achieve the learning objectives successfully.[ ]  Students were able to achieve the learning objectives with guidance.[ ]  Students were not able to achieve the learning objectives. |

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| **DAILY LESSON PLAN** **MATHEMATICS FORM 3** |
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| **LEARNING AREA** | Number and Operations |
| **UNIT/TOPIC** | Indices |
| **CONTENT****STANDARDS**  | 1.2 Law of Indices | **LEARNING STANDARDS**  | 1.2.4 - 1.2.7 |
| **LEARNING OBJECTIVES** | **At the end of learning, students will be able to:*** Verify that *a*0 = 1 and *a*–*n* = $\frac{1}{a^{n}}$; *a* ≠ 0
* Determine and state the relationship between fractional indices and roots and powers.
* Perform operations involving laws of indices.
* Solve problems involving laws of indices.
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| **ACTIVITY** | **Starter:**Teacher explains to the students that in addition to positive indices, *an*, that have already learned, *n* could be zero, negative and fraction.**Activity:**1. Teacher provides guidance to the students on how to carry out the activity in textbook, p.14, and hence make generalisation *a*0 = 1$;a\ne 0$
2. Teacher provides guidance to the students on how to carry out the activity in textbook, pp.14 & 15, and hence make generalisation $a^{-n}=\frac{1}{a^{n}};a\ne 0$
3. Teacher uses the textbook to explain the relationship between $\sqrt[n]{a}$ and $a^{\frac{1}{n}}$ , and hence make generalisation $\sqrt[n]{a}=a^{\frac{1}{n}};a\ne 0$
4. Teacher uses the textbook to explain the relationship between $a^{\frac{m}{n}}$ and $\left(a^{m}\right)^{\frac{1}{n}}, \left(a^{\frac{1}{n}}\right)^{m}, \sqrt[n]{a^{m}}$ and $\left(\sqrt[n]{a}\right)^{m}$ , and hence make generalisation:

 $a^{\frac{m}{n}}=\left(a^{m}\right)^{\frac{1}{n}}=\left(a^{\frac{1}{n}}\right)^{m}$  $a^{\frac{m}{n}}= \sqrt[n]{a^{m}} =\left(\sqrt[n]{a}\right)^{m}$1. Teachers explains the method for calculating values in the form of $a^{\frac{m}{n}}$.
2. Teacher asks each student to write one example that meets the index law that has been learned on a piece of paper.
3. Teacher discusses examples in solving problems involving the laws of indices.
4. Teacher asks students to do exercises in the workbook and textbook.

**Closure:**Teacher discusses all the answers. |
| **REFLECTION** | [ ]  Students were able to achieve the learning objectives successfully.[ ]  Students were able to achieve the learning objectives with guidance.[ ]  Students were not able to achieve the learning objectives. |