Unit 1 Day 6 – Repeater or Terminator? Classwork Name: _____

1. How do you turn a fraction into a decimal?

Some fractions will repeat and some will terminate. This activity will help you discover which fractions do or do not terminate.

2. Work independently with your set of fractions until you have created a conjecture. Organize your information so you can look at patterns and create a conjecture generalizing when a fraction will repeat and when it will terminate.

Questions to consider:

- What are some of the fraction's features?
- Which part of the fraction are you concentrating on?
- Will it work for all fractions?
- How do you know?

Your Conjecture:

3. After everyone has created their own conjecture, test your conjecture on someone else's fractions.

4. Revise your conjecture if necessary:

How do we convert terminating decimals back to fractions?

Let's explore how to convert repeating decimals back to fractions:

5. Change each of the following fractions to decimals. What patterns do you notice?

$\frac{1}{9}$	
$\frac{2}{9}$	
$\frac{3}{9}$	
$\frac{4}{9}$	

$\frac{5}{9}$	
$\frac{6}{9}$	
$\frac{7}{9}$	
$\frac{8}{9}$	

6. Change each of the following fractions to decimals. What patterns do you notice?

$\frac{1}{99}$	
$\frac{2}{99}$	
$\frac{3}{99}$	
$\frac{4}{99}$	

$\frac{58}{99}$	
$\frac{61}{99}$	
$\frac{75}{99}$	
$\frac{89}{99}$	

$\frac{2}{999}$	
$\frac{17}{999}$	
$\frac{304}{999}$	
$\frac{651}{999}$	

7. Summarize how you can write a simple repeating decimal back to a fraction:

8. The mixed number $5\frac{4}{9}$ is actually the sum of 5 and $\frac{4}{9}$. Use this fact to write the repeating decimal $27.\overline{8}$ as a mixed number, then rewrite it as an improper fraction:

9. What if the repeating pattern doesn't begin until a few places after the decimal point? How could we rewrite 3.61222222222… as a fraction? (Hint – what if it was 361.222222… ??)