

Date: 12.12.2013

Teacher: Ceren Özbay

Number of Students: 19

Grade Level: 6

Time Frame: 40 minutes

## Solving Equations

### 1. Goal(s)

- To developed an understanding of equality and equation.

### 2A. Specific Objectives (measurable)

- Student will able to find the appropriate equations of problems.
- Students will able to solve the equations.

### 2B. Ministry of National Education (MoNE) Objectives

- Eşitliğin Korunumunu modelle gösterir ve açıklar.
- Denklemi açıklar, problemlere uygun denklemleri kurar.
- Birinci dereceden bir bilinmeyenli denklemleri çözer.

### 2C. NCTM standards

- To understand and use the inverse relationships of addition and subtraction, multiplication and division, and squaring and finding square roots to simplify computations and solve problems. (NCTM number & operation standard: “Understand meanings of operations and how they relate to one another”) (NCTM, 2002)

### 3. Rationale

- Students need to learn equality in their real life.
- Students need to learn balance.

### 4. Materials

- The teacher will need a projector and computer to play the game big jeopardy.
- The teacher will need at-least two colored board markers.

## 5. Resources

- İlköğretim Matematik 6 Öğretmen klavuz kitabı

## 6. Getting Ready for the Lesson (Preparation Information)

- Before teaching, teacher will introduce herself.
- Before the class, teacher will control whether play runs or not.
- Students will work in groups in three during the class.
- Before teaching, teacher will mention about her rules that are students must raise their hand and they do not speak at the same time.
- Before playing the game, teacher will give the rules of the game. (rules are in the extension part)

## 7. Prior Background Knowledge (Prerequisite Skills)

- Students should know what algebraic expressions mean.
- Students should use inverse operations to solve a number sentence

## Lesson Procedures

*Transition: My Name is Ceren. I graduated from Hacettepe University, mathematics department. Now, I am a master student at Bilkent University. Today I am going to teach you solving equations.*

### 8A. Engage (3 minutes)

- Ask students: “Have you ever been to circus, why do acrobats carry a long rod when they on the rope?”
- Wait for the answers and tell about the balance, equality.

*Transition: Now, I have another question for you:*

### B. Explore (5 minutes)

- Ask the students whether the weight of 5kg oranges is equal to the weight of 3 kg strawberries or not.
- Then continue with the question “how many kg strawberries do we need to equalize the weight of two fruits?”
- Wait for a couple of answers and say that we need  $x$  kg strawberries more.
- Then write  $5 = x + 4$ ; so  $5 - 4 = x + 4 - 4$  ,  $1 = x$
- Want students to note what you write on the board.

*Transition: all of you made a good job, now, we learn about equations.*

### C. Explain (10 minutes)

- Ask students to make definitions of equality and equation means in their words.

- Asks for justification and clarification from students.
- Then write on the board question :

If we multiply a number by 3 and then add 5, the result is 23. Write this as an algebraic equation.

Solution:

Suppose we represent the number with the letter, n (for number).

Start with a number	n
Multiply it by 3	3 x n
Add 5	3 x n +5
The result is 23	3 x n + 5 = 23

So, the algebraic equation which represents the problem is  $3 \times n + 5 = 23$ .

- Then teacher will remind the inverse operation and continue to solve the problem.

$$3 \times n + 5 = 23 \rightarrow 3 \times n + 5 - 5 = 23 - 5 \text{ (the inverse of } +5 \text{ is } -5)$$

$$3 \times n = 18$$

$$3 \times n / 3 = 18 / 3 \text{ (dividing both sides by 3 as } /3 \text{ is the inverse of } \times 3)$$

*Transition: let's play the game.*

D. Extend (15 minutes)

- Before playing the game teacher will give the rules of the game to the students.

- That are :

TEAMS (groups in three)

TIME (is given on the question)

ORDER (everybody must watch the order)

SIMPLE (there are 3 levels easy, medium and hard)

3 RISK QUESTIONS- at most 500 points.

NO CALCULATORS, NO NOTEBOOK

If it is necessary solve problem on the board !

*Transition: all of you made a good job.*

E. Evaluate (4 minutes)

- Assesses students' knowledge and skills through oral questions.

- Observe the students during the lesson and check each student's answer.

#### 9. Closure & Relevance for Future Learning (3 minutes)

- Ask them to explain what they learn today.
- Ask them to write a journal with a couple of sentences about this lesson.
- Give homework from textbooks by asking main teacher Ms. Dalbudak.

#### 11. Modifications

- If students cannot remember previous lesson, give them some clues.
- If students do not give answer to your questions, wait 20 seconds more.
- If a student cannot solve a question, want Mehveş to solve the question on the board.

## BÜYÜK RİSK



Çevre Ödül  
13.12.2013

100 A - Cevap :

$$m = 38$$



Çoktanlı	Çoktanlı	Çoktanlı	Çoktanlı	Çoktanlı	Çoktanlı
1	2	3	4	5	6
7	8	9	0	.	/
+	-	*	:	=	←

**İYİ ŞANSLAR!**

200A

$3m + 8 = 8$  denkleminin  
çözümü nedir ?

1 Puan

100A

$m+3 = 41$  denkleminin çözümü nedir ?

1 Puan

200 A- CEVAP:

$$m = 0$$



300A

$4(m-9) = 16$  denkleminin çözümü  
nedir ?

1 Puan

100B-Cevap:

$$48$$



300A-CEVAP:

$$13$$



200B

$\frac{4k}{5} = 20$  denkleminin çözümü  
nedir ?

1 Puan

100B

$k - 12 = 36$  denklemini çözünüz.

1 Puan

200B-CEVAP:

$$25$$





3008

$$\frac{k-22}{7} = 19 \text{ ise } k \text{ nedir?}$$

100

1000-CEVAP

$$\frac{X}{4} = 12$$



3008-CEVAP

155



2000



1000

Bir sayının dörtte birinin 12 olduğunu gösteren denklemi yazınız.

100

2000

Bir sayının 4 katının 8 eksiği 12 ise, o sayı ne olmalıdır?

1000

2000-CEVAP

5



1000



2000

Ardışık üç sayının toplamı 50 ise en küçük sayı kaçtır?

100

1000

Bir sayının üçte dördü 40 ise o sayı nedir?

100

3000-CEVAP

19



1000-CEVAP

30



1000

Bir sayının 4 fazlasının yansı 42 olduğuna göre bu durumu gösteren denklemi yazınız.

1000

1000-CE/AP

$$(5x-2)+3 = 57$$



1000-CE/AP

$$\frac{x+4}{2} = 42$$



1000

Selin akından bir sayı tuttu. Selin'in tuttuğu sayının 3 katının 6 eklediği 44 olduğuna göre, Selin'in tuttuğu sayı nedir ?

1000

1000

Bir sayının 3 katının 2 eksiğinin 3 fazlası 57 ise bu ifadeyi gösteren denklemi yazınız.

1000

1000-CE/AP

50



100E

Tevuk ve hindi'den oluşan bir kümele  
tevukların sayısı hindi'lerin sayısının 4  
katından 3 eksikçe tevuk sayısını gösteren  
denklemdir ?

...

100E-CEVAP

$$3(x+2) = 24$$

$$x = 6$$



100E-CEVAP

$$4x-3$$



100E

Umut'un boy uzunluğu bir yıl içerisinde 6  
cm uzayarak 157 cm oldu. Umut'un bir yıl  
önceki boy uzunluğunu gösteren  
denklemini yazınız.

...

100E-CEVAP

$$y + 6 = 157$$



100E

Kısa kenar uzunluğu 3br olan  
dikdörtgenel bölgenin, uzun kenar  
uzunluğu 2 br arttırıldığında alanı  
24br<sup>2</sup> oluyor. Başlangıçtaki uzun kenarın  
uzunluğunu denklem kurarak bulunuz.

...

100E

Ayla'nın tokalannın sayısının iki  
katının 3 fazlası 41 olduğuna göre  
Ayla'nın kaç tokası vardır ?

...

100E

Yaş çay yaprağı işlendikten sonra  
 $\frac{1}{5}$  kadar çay elde edilir. Buna göre 125  
ton çay elde etmek için kaç ton yaş çay  
yaprağının işlenmesi gerekir ?

...

100E-CEVAP

19



100E-CEVAP

750 ton



100E

**KURŞAK**

1. ZORLUK TEMA
2. ZORLUK
3. SIKLIK
4. CEVAP VERME ÖZELLİĞİ
5. ZORLUK DENEYİMİ
6. ZORLUK RİSKİ ZORLUK İYİ NİSİLİ ZORLUK
7. NEKİP KURŞAK İYİ NİSİLİ ZORLUK
8. YERİNE YERİNE ZORLUK TEMA ÇÖZÜMLERİ

