

Date: 19.12.2013

Teacher: Tuğba Özcan / Ceren Özbay

Number of Students: 18

Grade Level: 5

Time Frame: 40 minutes

Problem Solving in Unit of Measuring Time

1. Goal(s)

- To develop students' knowledge about measuring time by solving word problems

2A. Specific Objectives (measurable)

- Students will be able to understand the word problems about the unit of measuring time and then they will be able to solve.
- Students will be able to measure the time.
- Students will be able to solve real life problems about time.
- Students will be able to recognize the importance of time.
- Students will be able transform hours to minutes or seconds and also translate minutes and seconds to hours.

2B. Ministry of National Education (MoNE) Objectives

- Zaman ölçü birimlerini tanır, birbirine dönüştürür ve ilgili problemleri çözer.
- Saniye, dakika, saat, gün, ay ve yıl ele alınır.

2C. NCTM-CCSS-IB or IGCSE Standards:

- The students will be able to calculate times in terms of the 24-hour and 12-hour clock; read clocks, dials and timetables. (IGCSE)
- Students will be able to write the time to the nearest minute and measure the time intervals(CCSS)
- Students will be able to solve problems involving measurement and estimation of intervals of time(CCSS)
- Students will be able to select and apply appropriate standard units and tools to measure time(NCTM)

3. Rationale

- The purpose of this lesson to teach measuring time problems
- The students will work on problems and improve their understanding of word problems
- The students need this lesson because they will solve the real life problems about the time by measuring time

4. Materials

- Two different colored board marker
- Projector
- Laptop
- Worksheets and activity sheets (There are 18 students in class)
- A notebook in which there is a list of the names of the students and a pencil for assessment

5. Resources

- MEB Ortaokul Matematik 5. Sınıf 1. Kitap
- <http://www.egitimhane.com/5-sinif-matematik-zamani-olcme-sunusu-d97092.html>

6. Getting Ready for the Lesson (Preparation Information)

- The teacher will prepare and copy worksheets for each student before the class (there are 18 students in the class)
- The teacher will prepare the laptop and projector and control if they work properly
- The teacher will explain students the instruction given in the worksheets.
- The teacher will let the students study worksheets individually or with a group
- The teacher will monitor the students while they are studying, and help them if they need

7. Prior Background Knowledge (Prerequisite Skills)

- The students will be expected to know reading times.
- The students will be expected to know how they convert hours to minutes or second or reverse.
- The students will be expected to make operations with times.
- The students will be expected to have algebraic thinking and apply it to problem solving

Lesson Procedures

Transition: Part 1: "Is there anybody whose family member or friend lives in US?"

Part2: Hi guys! Again we will be together in this lesson. I missed you and I am so happy to be with you again. I hope we will have a good and enjoyable lesson together.

8A. Engage (5 minutes)

Part1:

- The teacher will ask students if they know anybody who lives in US and how they talk with this person, at what times they talk with him why this is difficult to talk to someone in the US.
- The teacher will tell them a story about her friend whose name is Eric. He lives in Chicago. The teacher wants to skype with him very but can never find the time to talk to him at Skype because of the time difference. When the teacher comes back from school at evening hours, Eric has to go to lesson.

Part2:

- The teacher will start the lesson by mentioning about the previous hour and remind the topic of the lesson
- The teacher will ask questions related to the previous hour such as " I want to know what did you learn in the previous hour and what did you remember from that lesson? How and where can you use this knowledge in daily life?"
- The teacher will wait for the students to answer
- The teacher will discuss the answers with all class
-

Transition: Part1: "As I heard from my friends there is the same problem between Japan and Turkey, but South Africa. Do you know where these countries on the map? "

Part2: Now, we will continue to the problems about measuring time and improve your knowledge. Let's have a look at the problems on the worksheets

B. Explore (10 minutes)

Part1:

- The teacher will show a map to the students.

- The teacher will let students ask questions about her friend who luckily lives abroad.
- The teacher will let students discover that time in Cairo and Turkey is the same but time differs to East and West differently.
- The teacher will let students explore and come up with a conclusion that if they go to West time gets earlier and to East it becomes sooner. Why is this happening? What do Bati and Dogu mean in Turkish?
- The teacher will want students to talk about her relatives and how much exactly time difference there is between them.
- The teacher will write the times in the same day at these countries on the board:

Turkey: 23:00

Germany: 22:00

US: 15:00

Japan: 06:00

South Africa: 23.00

- The teacher will want to share their findings by raising their hands.

Part2:

- The teacher will give students five seconds to look at the problems
- The teacher will give a clear instruction about the problems on the worksheet (this worksheet can be seen as a pretest)
- The teacher will move around the class and observe students.
- The teacher will give one more minutes to the students if necessary.
- The teacher will discuss the answers and ask if there is any misunderstood points.

Transition:Part1:"I am going to turn on the projector and I shall share a photo with you and I want you to share your idea about the times on it."

Part2: After discussion the teacher will check all students answers and explain and clarify the points not understood on the board. Let's look at the answers and check all of them.

C. Explain (5 minutes)

- **Part1:**

The teacher will show the problem.



Sevimli Canavarlar

Uluslar arası televizyon kanalı Sevimli Canavarlar adlı filmin yayın saatini yazıyor. Yukarıdaki ülkeler arasındaki saat farklarını bulabilir misiniz?

- The teacher will give time to provide students to share their ideas to the class by raising hands
- The teacher will want students to write the problem on their notebooks.
- The teacher will want students to find the time difference between Istanbul and Tokyo, Istanbul and New York an Istanbul and Bakü.
- The teacher will ask their answers and solutions after five minutes.
- The teacher will also explain how the time difference can find.
- The teacher will want students to write one or two sentences what they explore with this problem and want them to share by raising hands and the teacher will take notes about the students' writings at the same time.

Part2:

- The teacher will ask their answers and solutions after 30 seconds and then explain the on the board
- The teacher will want students to write one or two sentences what they explore with this problem.
- By the way the teacher will be sure all the students have the same solution by asking students “Does anyone disagree with this answer?” and discuss
- The teacher will wait for students to write the board on their notebook

Transition: Part1: “ let’s do this activity 1”

Part2:The teacher will say "Now we will have an enjoyable activity and I want you to make a group four. You can be group with your friends you want. And then teacher distribute the activity worksheets

D. Extend (20 minutes)

Part1:

- Teacher will project three questions and make students watch Polya’s steps.
 1. Türkiye’nin doğu ucundak Ağrı ile batı ucundaki Çanakkale arasındaki zaman farkı 66 dakikadır. Çanakkalede 05:56’da güneş doğduğuna göre, Ağrı’da saat kaçta güneş doğar?
 2. Bir bebek saat 22.35’te uyumuş ve sabah saat 07.12’de uyanmıştır. Buna göre bu bebek ne kadar süre uyumuştur ?
 3. Büşra’nın doğum tarihi 28 Ekim 2000 ‘dir. Ablası Gülşen’in doğum tarihi ise 17 şubat 1993 ‘tür. Büşra, ablasından kaç yıl, kaç

ay ve kaç gün büyüktür ?

Part2:

- The teacher will give a clear instructions about the activity and problems on the worksheets
- The teacher will help the students if they need or clarify the misunderstood points and note her checklist the students' assessment
- By the way teacher will walk around the students and learn them whether or not they need to help by asking "*Is there anything they are confused about?*"
- The teacher will walk around the students and take notes in your notebook about their assessments in the group, which student is in which position in the group, a helper or the head of the group.
- The teacher will observe the students and ask them questions such as "*Why do you think that?*", "*How did you reach that conclusion?*"

Transition:Part1:

Part2: Now I want you to write a single sentence on your notebook about what you learned today and when you meet any measuring time problem can you think to challenge any problem about the topic?

E. Evaluate (throughout the lesson)

Part1:

Part2:

- The teacher will observe each student during the lesson take notes about their assessment while they are studying the worksheets
- The teacher will assess students' knowledge and skills through oral questions
- The teacher will control the students' names from her checklist about their assessment while they are studying on the problems with a group

9. Closure & Relevance for Future Learning

- The teacher will summarize the lesson by saying today we have learned and how to calculate it.
- The teacher will ask students if there are any points not understood.
- Teacher will say that "ok you all made a good job today and thank you very much for this enjoyable lesson".
- Teacher ask a last question which is "We started doing math at 11 am. And now it is 12.30 am. How long have been doing math?" and closed this session.
- The teacher will give the students their homework.

- The teacher will state the next topic of the lesson.

10. Specific Key Questions:

- How would solve a problem like that? [Analysis]
- Can you estimate the birthday of your friend? [Evaluation]
- How can you calculate the time between the ...? [Analysis]
- How can you calculate the time differed up to now? [Analysis]
- What did you notice in this problem? [Analysis]
- How can we generalize the way that we observed? [Synthesis]
- Why do you think that?
- How did you reach that conclusion?

11. Modifications

- If students cannot remember to measure the time the teacher will give some clue.
- If students cannot remember transform hours to minutes or seconds and also translate minutes and seconds to hours.
- If the students need more time while they solve the exercises the teacher will give one more minutes.
- If the students cannot solve the exercises the teacher will come back the definitions or previous examples and explain again.
- If the students cannot remember the factorization remind how to factorize.
- If the students cannot give answer your questions wait 20 seconds more or give them clues.
- If students confuse about the answer clarify it by another way.
- If they cannot solve the problems or did not understand, want another student to explain their friends how she or he did or which method they used.

Aktivite Kağıdı 1

*** Aşağıdaki tabloda Arda'nın bir gün içerisinde yaptığı etkinliklerin saatleri verilmiştir. Sorular tabloya göre yanıtlayınız.

SAATLER	ETKİNLİKLER
08:00	Kalkma – Kahvaltıya hazırlık
08:15	Kahvaltı
08:45	Servisle okula gidiş
09:00	Ders başladı
12:30	Öğle yemeği molası
13:30	Ders başladı
15:30	Okul bitti
15:45	Eve geliş – dinlenme
16:30	Oyun oynama
17:00	Ders çalışma
19:00	Akşam yemeği - Dinlenme
20:30	Kitap okuma
21:15	Yatma

* Arda'nın okula kaç dakikada varıyor?

* Öğle yemeği molasından önce derslere ayrılan süre ne kadardır?

* Öğle yemeği molası kaç saattir?

* Arda dinlenme ve oyun için ne kadar zaman harcıyor?

* Arda'nın okulda kaldığı toplam süre ne kadardır?

* Arda derslerini ne kadar sürede bitiriyor?

* Kaç dakika kitap okuyor?

* Siz derslerinizi ne kadar sürede bitiriyorsunuz?

* Arda günde kaç saat uyuyor?

* Arda yemek için ne kadar zaman harcıyor?

* Kitap okumaya ayırdığınız süre ne kadar?

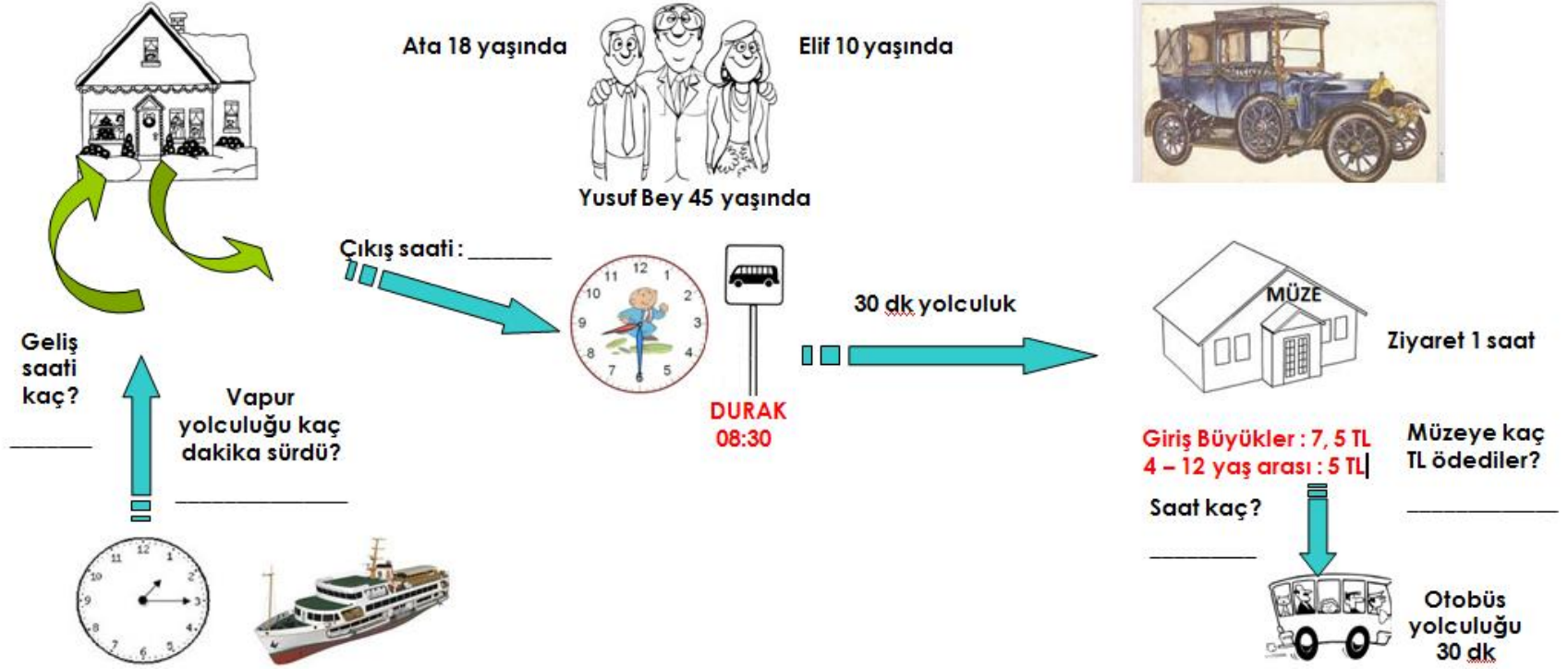
*** **Tablo: Günlük Ders Çalışma Süreleri**

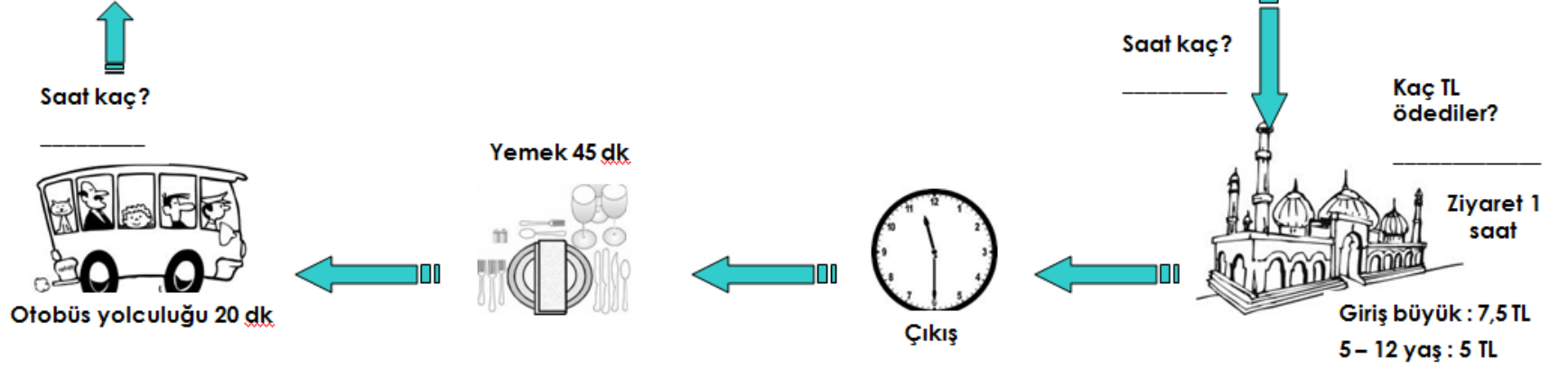
İsim	saat	dakika	saniye
Aynur	3		7
Ege		165	32
Buse		185	
Ömer			1800

Yandaki tabloda dört arkadaşın günlük ders çalışma süreleri verilmiştir. Hangisinin çalışma süresi daha fazladır?

Aktivite Kağıdı 2

*** Yusuf Bey hafta sonu kızı ve oğluyla birlikte müze ve tarihi yerleri geziyor. Gezinin süresini ve giderlerini noktalı yerleri doldurarak hesaplayınız.





Çalışma Kağıdı

1. Aşağıda verilen zaman ölçü birimlerini istenilen zaman ölçü birimlerine çeviriniz.

a) 2 sa = dk

b) 168 sa = gün

c) 6 sa = sn

ç) 3 gün = sa

d) 9 ay = gün

e) 720 dk = sn

f) 7 dk = sn

g) 3600 dk = sa

h) 5 yıl = ay

i) 7200 sn = sa

2. Aşağıda verilen zaman ölçü birimlerini istenilen zaman ölçü birimlerine çeviriniz.

a) 3 sa 25 dk = dk

b) 10 dk 45 sn = sn

c) 2 gün 6 sa = sa

ç) 4 yıl 8 ay = ay

d) 1 sa 15 dk = sn

e) 2 gün 2 sa = dk

f) 280 sa = dk sn

g) 489 gün = yıl ay gün

3. Aşağıda verilenlerden en uzun olan zaman ölçüsünü işaretleyiniz.

a) 1 sa 35 dk

b) 65 dk 12 sn

c) 5760 sn

ç) $\frac{3}{2}$ sa

5. Aşağıdaki işlemleri yapınız.

a)

Yıl	Ay	Gün
2013	07	13
- 1995	11	28
<hr/>		
<input type="text"/>		

b)

Yıl	Ay	Gün
2012	2	14
- 2009	7	19
<hr/>		
<input type="text"/>		

c)

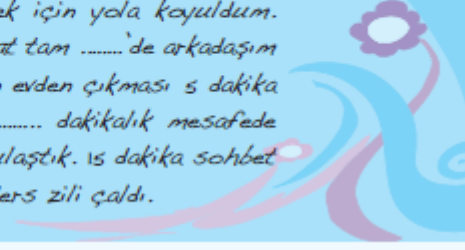
sa	dk
15	45
+ 10	05
<hr/>	
<input type="text"/>	

ç)

sa	dk
39	46
= 01	55
<hr/>	
<input type="text"/>	

6. Aşağıdaki gnlkte noktalı kısımları doldurunuz.

Sevgili gnlk,
Bugn sabah saat kalktım. 15 katırtım yaptım ve 07.20'de okula gitmek iin yola koyuldum. 8 dakika yrdkten sonra saat tam de arkadaşımla Boran'ın evine geldim. Boran'ın evden çıkması 5 dakika srd. Boran'ların evi okula dakikalık mesafede olduđu iin 07. 45'te okula ulaştık. 15 dakika sohbet ettikten sonra saat 'de ders zili çaldı.



8. Baran, saat 15.15'te resim yapmaya başladı. Resmi bitirdiğinde saat 17.05 olduğuna göre resmi ne kadar sürede tamamlamıştır?

9. Tarife göre 1 saat 15 dakika pişmesi gereken kurabiyeleri saat 14.47'de fırına koyduğunuza göre fırını saat kaçta kapatmalısınız?

10. 105 dakikalık tiyatro oyununun birinci seansı saat 11.50'de başlamış ve gösterim sırasında 10 dakika ara verilmiştir. Birinci seans bittikten 20 dakika sonra ikinci gösteri seansı başladığına göre ikinci gösteri seansının başlama saati kaçtır?

11. Türkiye'nin doğu ucundaki Iğdır ile batı ucundaki Çanakkale arasındaki zaman farkı 76 dakikadır. Çanakkale'de saat 05.56'da güneş doğduğuna göre Iğdır'da saat kaçta güneş doğar?

12. İrem 23 Mayıs'ta, Elif ise aynı yıl 4 Eylül'de doğmuştur. İrem, Elif'ten kaç gün büyüktür?

14. Emre, cumartesi günü için kendine aşağıdaki programı hazırlamıştır.

Etkinlik	Süre
Kahvaltı	45 dk
Oyun	1 sa 25 dk
Ders çalışma	1 sa 40 dk
Öğle yemeği	45 dk
Oyun	2 sa 10 dk
Ders çalışma	2 sa 25 dk
Akşam yemeği	45 dk
Oyun	1 sa 40 dk
Televizyon izleme	1 sa
Oda toplama	30 dk
Kitap okuma	45 dk
Uyku	?

- a) 1 günün 24 saat olduğunu biliyorsak Emre kaç saatini uykuya ayırmıştır?
- b) Emre toplam kaç dakikayı ders çalışmaya ayırmıştır?
- c) Emre'nin oyun oynamaya ayırdığı toplam süre, kitap okumaya ayırdığı süreden ne kadar fazladır?

SLIDES



Türkiye'nin doğu ucundak Ağrı ile batı ucundaki Çanakkale arasındaki zaman farkı 66 dakikadır. Çanakkalede 05:56'da güneş doğduğuna göre, Ağrı'da saat kaçta güneş doğar?



Çanakkale



Ağrı



Büşra'nın doğum tarihi 28 Ekim 2000'dir. Ablası Gülşen'in doğum tarihi ise 17 şubat 1993'tür. Büşra, ablasından kaç yıl, kaç ay ve kaç gün büyüktür?

