Christina School District Assignment Board

Student's First & Last Name _____ Student ID/Lunch # _____ School _____ Grade _____

Grade Level: 7th

Week of June 8th, 2020

		Day 1	Day 2	Day 3	Day 4	Day 5
ELA		This week you will hone your understanding of blogs by reading a narrative and creating a blog in the voice and characterization of the character using the text as the window into the character. --- Read the narrative **"The Anklet"** As you read, annotate words, phrases that identify characterization of all characters.	Answer the Text-Dependent Questions 1-5.	Reread or skim the text. Complete Character Maps	Complete Day 4 Character Blog	Respond/comment on one of the blogs of your character from the perspective of the character you did not choose. The response must be 100-150 words
Math (IM1 can be found on the 8th	**7**	*Solving Proportions* Answer "Which One Doesn't Belong?" and justify your choice. (attached) Read	Complete 7-108 and 7-109. (attached) Refer to Math Notes if needed.	Complete 7-110. 7-112, and 7-113. (attached) Refer to Math Notes if needed.	Read pages 44. Use examples to assist completing p. 46 #15-19. (attached)	Complete p. 46 #20-23. (attached) Refer to examples if needed.

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Grade Board)		Math Notes: Solving Proportions to assist completing 7-106 and 7-107. (attached)				
	7+	(Math 7+ should follow the Math 8 calendar in the 8th grade packet PLUS complete the Puzzle Investigator Problem (PIP) 10 - Making Tracks! (attached)				
Science		**Salamanders: The Reigning Regenerators of the Animal Kingdom (part 1):** Read article. In YELLOW, highlight or underline the role of cells in helping a salamander regrow body parts. In GREEN, highlight or underline the role of tissues in helping a salamander regrow body parts.	**Salamanders: The Reigning Regenerators of the Animal Kingdom (part 2):** Reread article and/or notations as needed. Write your best answers to the following: a) What are the pros and cons of tail loss in salamanders? b) How is salamanders' blastemal similar to human stem cells? c) In what order do these elements promote limb regeneration? (blastemal, epithelial cap, fibroblasts, nAG) d) How can humans apply this knowledge about salamander limb regeneration?	**Salamanders: The Reigning Regenerators of the Animal Kingdom (part 3):** Review article and/or notations as necessary. Write a claim that answers the following: How do a salamander's cells interact to regenerate limbs? Support your claim with evidence from the article. Then, explain why the evidence supports your claim.	**Learning How the Bones and Muscles Work Together (part 1):** Read article. In YELLOW, highlight information about the structure and function of bones. In BLUE, highlight information about the structure and function of muscles. In GREEN, highlight information about how bones and muscles work together to produce movement.	**Learning How the Bones and Muscles Work Together (part 2):** Reread article and/or notations as necessary. Read the following claim: A bone cannot bend without two muscles. Write: What evidence from the article supports this claim? Explain why the evidence supports the claim.
Social Studies		Complete Activity 1 from the document titled, "Partnerships and Partitions-PART 3"	Complete Activity 2 from the document titled, "Partnerships and Partitions-PART 3"	Complete Activity 3 from the document titled, "Partnerships and Partitions-PART 3"	Complete Activity 4 from the document titled, "Partnerships and Partitions-PART 3"	Complete Activity 5 from the document titled, "Partnerships and Partitions-PART 3"

Name: _____ Class: _____

The Anklet

By Neil Philip
1994

Neil Philip is a writer and poet who has retold the best-known stories from The Arabian Nights *for a modern day audience.* The Arabian Nights *is the English-language nickname frequently given to* One Thousand and One Arabian Nights*, a collection of folk tales written and collected in the Middle East during the Islamic Golden Age of the 8th to 13th centuries. In this tale, a poor young woman must deal with mistreatment by members of her own family. As you read, take notes on the youngest sister's actions and feelings.*

Sheherazade told stories night after night: all the voyages of Sinbad the Sailor, and the adventures of Land Abdullah and Sea Abdullah, the fate of the man who stole the dog's golden dish, the story of the ruined man who became rich again through a dream. And one night she told the story of

The Anklet

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[1] It is said, O King, that there were once in a city three sisters, who lived together and earned their bread by spinning flax.[1] The youngest was also the prettiest, radiant[2] and graceful as the moon. Her elder sisters, who were born to a different mother, hated and envied[3] her, both for her beauty and for her skill at spinning.

One day the youngest went to the market, and, finding herself with a small coin left over, bought a little clay pot to hold flowers.

"You silly girl," shrieked the sisters. "We can't waste our money on fancies and fripperies."

She made no answer, but placed a single rose in the pot, and sat down to her spinning.

[5] The days passed, in drudgery[4] and silent toil.[5] The two older sisters kept nagging the poor girl and making fun of her. Her only pleasure in life was to fill the little pot with flowers, which she could look at and smell as she worked.

1. Flax is a plant fiber that can be woven to make cloth.
2. shining or glowing
3. **Envy** ***(verb):*** to desire to have a quality or possession belonging to someone else
4. hard, menial, or dull work
5. **Toil** ***(noun):*** exhausting physical labor

Now one day the sisters were out, and the girl, alone with her thoughts, burst into tears. "Oh, little pot," she said, "you are my only friend. My sisters have gone out and left me to work all by myself, without anything to eat."

And the little pot heard her, and brought forth sweetmeats for her to eat. For there was a jinni[6] in the pot, and whatever the mistress of the pot asked for, the jinni would provide.

The girl kept the secret of the pot from her sisters, but whenever they were out, she would ask for whatever she fancied.[7] She would eat and drink her fill, and dress up in beautiful clothes; but when her sisters came home, she was always careful to be back in her rags and hard at work at her spinning wheel.

Now it happened that the king announced that he was going to hold a great feast for all the people of the city. Everyone was invited, even the three poor sisters.

[10] The two older sisters dressed up in their threadbare best, and set out for the feast. "You can't come," they said. "You would shame us in those rags. You're not fit for such fine company."

But as soon as they were gone, the girl asked her pot for a beautiful green robe and scarves and garments of the finest silk. She asked, too, for sparkling rings and turquoise bracelets, and gold anklets studded with diamonds to wear around her slender ankles.

When she entered the king's harem, where the women's part of the entertainments was being held, everyone there gasped at her beauty, and at the richness of her magic clothes and jewels. Even her sisters were moved to tears at her grace and charm, and never guessed that this lovely princess was their own despised[8] sister.

The girl slipped away before the end of the feast, so as to be home first. She took off the diamond anklets in order to be able to run faster, and in her haste she did not notice that she dropped one. It fell into the water trough where the king's horses drank.

Next morning the horses refused to drink, shying away from the trough in terror, for the anklet shone and flared beneath the water, frightening them.

[15] The groom took the jewel to the king's son. He turned it around and around in his hands, saying nothing. Finally he declared, "The girl whom this anklet fits shall be my wife!"

He took the anklet to his mother. "Mother," he said, "you know about such things. Please find the girl to whom this anklet belongs. I am in love with her already, and long to see the anklet gracing her slim, shapely ankle."

So the queen organized a search of the whole city. She visited all the harems, and all the houses, but no one had an ankle slim enough to wear the anklet. Finally she went into the very poorest quarter, to the house of the three sisters. The two older sisters tried in vain to force the anklet on, but when the queen tried it on the youngest, it fitted perfectly. The search was over.

6. an intelligent spirit able to appear in human and animal forms
7. **Fancy** ***(verb):*** feel a desire or liking for
8. **Despised** ***(adjective):*** hated

The queen led the girl back to the palace. The celebrations went on for forty days and forty nights, while the wedding was prepared. At last, the day arrived, and the bride was taken to the baths by her sisters, who were to dress her.

The older girls had worried away at the poor, trusting girl until they had wheedled[9] the secret of the magic pot from her and they, too, had made requests of the jinni. They dressed her hair with the diamond pins the jinni provided, and as the last pin went into place, the girl was turned into a white dove, which flew out the window in panic. She had been transformed by the magic pins.

[20] When the queen asked where the bride was, the sisters just said, "She has gone."

The prince sent out search parties to scour[10] the city for his bride, but she was nowhere to be found. Without her, he began to sicken and waste away.

Every day, at dawn and at dusk, the white dove came to the prince's window, and cooed to him in his misery. The prince grew to love the bird, which seemed to be the only creature that could sooth his lonely heart. Once a day he reached out to touch her and, seeing she did not fly away, took her in his hand.

The dove cooed at the prince, and he began to smooth her feathers. Noticing something hard beneath them, he scratched the place, and out fell a diamond pin. He pulled out another, and another. And when the last pin was gone, the dove ruffled her feathers and shook herself back into her true shape, his bride once more.

The prince and his love lived many years in happiness, blessed by children as beautiful and kind as themselves. But the two sisters died of jealousy, poisoned by their own spite.

9. to use flattery to persuade someone to do or give something
10. to look through a place carefully

Text-Dependent Questions

Directions: For the following questions, choose the best answer or respond in complete sentences.

1. PART A: Which statement best expresses the theme of the story?
    A. Family members don't always get along and work together.
    B. If you try to keep someone else down, you'll end up hurting yourself more.
    C. Sometimes you need to put your own needs before someone else's.
    D. Cruel people are sometimes rewarded, even when they treat others poorly.

2. PART B: Which detail from the story best supports the Answer to Part A?
    A. "One day the youngest went to the market, and, finding herself with a small coin left over, bought a little clay pot to hold flowers." (Paragraph 2)
    B. "She asked, too, for sparkling rings and turquoise bracelets, and gold anklets studded with diamonds to wear around her slender ankles." (Paragraph 11)
    C. "The older girls had worried away at the poor, trusting girl until they had wheedled the secret of the magic pot from her and they, too, had made requests of the jinni." (Paragraph 19)
    D. "But the two sisters died of jealousy, poisoned by their own spite." (Paragraph 24)

3. PART A: Which statement best describes the older sisters' treatment of the youngest sister?
    A. The older sisters are jealous of the youngest sister, so they ignore her.
    B. The older sisters try to learn how to spin from the youngest sister because they admire her skill.
    C. The older sisters try to make the youngest sister feel bad about herself, but they are really jealous.
    D. The older sisters are sometimes willing to share with the youngest sister.

4. PART B: Which detail from the text best supports the answer to Part A?
    A. "'You can't come,' they said. 'You would shame us in those rags. You're not fit for such fine company.'" (Paragraph 10)
    B. "Even her sisters were moved to tears at her grace and charm, and never guessed that this lovely princess was their own despised sister." (Paragraph 12)
    C. "The two older sisters tried in vain to force the anklet on, but when the queen tried it on the youngest, it fitted perfectly." (Paragraph 17)
    D. "At last, the day arrived, and the bride was taken to the baths by her sisters, who were to dress her." (Paragraph 18)

5. How does the older sisters' use of the jinni contribute to the plot?
    A. It emphasizes their spiteful treatment of their youngest sister.
    B. It shows their efforts to try to win the prince's heart and change their destinies.
    C. It emphasizes how unfair their situation has been all along.
    D. It shows their efforts to figure out how their youngest sister got the anklet.

Character Map

Instructions: Choose 2 characters from the narrative and chart their character traits. Be sure to cite the evidence of your choices in the Textual Evidence box.

Character 1 Name	**Feelings**	**Description**	**Behavior**	**Personality Traits**
	Textual Evidence	**Textual Evidence**	**Textual Evidence**	**Textual Evidence**

Character 2 Name	**Feelings**	**Description**	**Behavior**	**Personality Traits**
	Textual Evidence	**Textual Evidence**	**Textual Evidence**	**Textual Evidence**

Day 4 - Character Blog

Review the sample blog.

A Young Capulet in Love

"Did my heart love till now? ...

Posted by Juliet Capulet on May 11, 2020

Oh Romeo...you looked so hot at the dance! Why must my name be Juliet? Our parents won't let us be together--everyone knows that! You are a Montague, and I am a Capulet. Out families **HATE** each other. What are we to do? How can we ever be together? Just they other day I saw your cousins fighting with mine. Blood shed seems to be the only solution to a problem, I suppose. You know, I was wondering...what happened that made our families hate each other so? I'm nearly fourteen, and for as long as I can remember, they've been feuding. I just want us to be together--get married, live happily ever after. If I never see you again, I hope you remember me. Remember my big brown eyes, long brown hair, and smile as bright as the sun, that lit up the world when I first saw you. Mostly, remember my heart; for it belongs to you. Will we ever be together? Is fate real? Is it our destiny that we saw each other at the dance? I can't help but think it was meant for me to love you. Do you feel the same way? I feel like our destiny has already been decided for us in a way because of our parents. They will keep us apart. "My only love sprung from my only hate! Too early seen unknown, and known too late! Prodigious birth of love it is to me, that I must love a loathed enemy" (Act 1, Scene V). Hate is never justified. Hate hurts other people and gets in the way of true love. Hate can kill. Will loving you be the end of us? I believe we will encounter more obstacles, perhaps the loss of one of our cousins who stupidly fight each other. Or perhaps, our parents will be told about us. Adieu sweet love.

Task

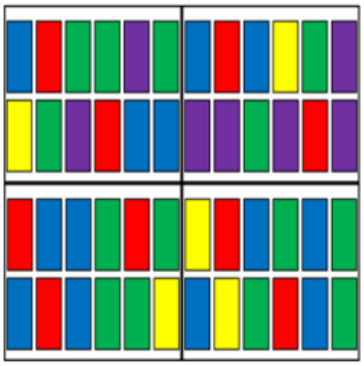
Review your character map. Choose one of the characters to be the voice of your blog.
Write a blog from the point of view of your character. The blog must include **ALL** of the following.

- The blog must focus on an event, another character, thought or action of the character.
- 2-4 posts with different dates written from the perspective of your character from various points in the action of the text. Each post must have at least 150 words. Keep in mind that blog posts will appear from most recent to oldest, so if you want your posts to flow chronologically, you should begin at the end of the story and move toward the beginning.
- At least one post must have a related image within it. Use picture cutouts or your own illustrations.
- Include a fake website link that relates to the blog. For example, if the character is talking about sandwiches include a fake link to Bombsandwiches.com . (Internet links are underlined within text.)
- A header with a title that matches your character and blog content, with a quote related to your character from the story as a subtitle.
- A photo of your character (as you imagine him or her) at the bottom with a brief description of your character (role in life, relationships, goals, location, etc.)

Math 7 – Week of June 8th

Solving Proportions

Which One Doesn't Belong? Why?



METHODS AND MEANINGS

MATH NOTES

Solving Proportions

An equation stating that two ratios are equal is called a **proportion**. Some examples of proportions are shown at right.

$$\frac{6 \text{ mi}}{2 \text{ hr}} = \frac{9 \text{ mi}}{3}$$

$$\frac{5}{7} = \frac{50}{70}$$

When two ratios are known to be equal, setting up a proportion is one strategy for solving for an unknown part of one ratio. For example, if the ratios $\frac{9}{2}$ and $\frac{x}{16}$ are equal, setting up the proportion $\frac{x}{16} = \frac{9}{2}$ allows you to solve for x.

Strategy 1: One way to solve this proportion is by using a **Giant One** to find the equivalent ratio. In this case, since 2 times 8 is 16, so use $\frac{8}{8}$ for the Giant One.

$$\frac{x}{16} = \frac{9}{2} \cdot \boxed{\frac{8}{8}} \text{ and } \frac{9 \cdot 8}{2 \cdot 8} = \frac{72}{16}, \text{ which shows that } \frac{x}{16} = \frac{72}{16}, \text{ so } x = 72.$$

Strategy 2: Undoing division. Another way to solve the proportion is to think of the ratio $\frac{x}{16}$ as, "x divided by 16." To solve for x, use the inverse operation of division, which is multiplication. Multiplying both sides of the proportional equation by 16 "undoes" the division.

$$\frac{x}{16} = \frac{9}{2}$$
$$\left(\frac{16}{1}\right)\frac{x}{16} = \frac{9}{2}\left(\frac{16}{1}\right)$$
$$x = \frac{144}{2} = 72$$

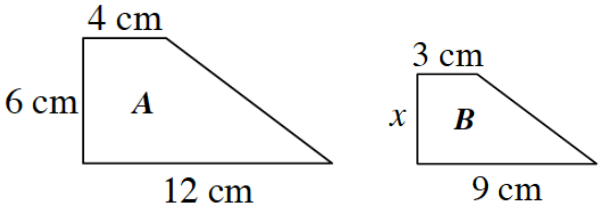
Strategy 3: Use Cross Multiplication. This is a solving strategy for proportions that is based on the process of multiplying each side of the equation by the denominators of each ratio and setting the two sides equal. It is a shortcut for using a **Fraction Buster** (multiplying each side of the equation by the denominators).

Complete Algebraic Solution

(Fraction Busters)	Cross Multiplication
$\frac{x}{16} = \frac{9}{2}$	$\frac{x}{16} = \frac{9}{2}$
$2 \cdot 16 \cdot \frac{x}{16} = \frac{9}{2} \cdot 2 \cdot 16$	$\frac{x}{16} \times \frac{9}{2}$
$2 \cdot x = 9 \cdot 16$	$2 \cdot x = 9 \cdot 16$
$2x = 144$	$2x = 144$
$x = 72$	$x = 72$

You have examined several proportional situations (such as the price of yogurt versus the number of pounds of yogurt) and non-proportional situations (such as the value of a college fund over time). This week you will continue to develop strategies for solving proportional equations.

7-106 J.R. reduced Figure A at right to create similar Figure B.



a. Write all of the ratios that compare the corresponding sides of figure B to figure A. What is the relationship between these ratios? How do you know?

b. One of the relationships between the sides can be written as $\frac{3}{4} = \frac{x}{6}$. Find two different ways to find the value of x in this equation. Is your answer reasonable? Be ready to share your strategies with the class.

7-107 J.R.'s team is trying to find multiple ways to solve $\frac{3}{4} = \frac{x}{6}$ from problem 7-106. Analyze each of the strategies below. Some of these strategies might be the same as what you came up with in problem 7-106. However, others may be new. Work to understand each strategy so that you can use it to solve a new problem.

a. J.R. wants to use a Giant One to help find the value of x. Explain how he can find a value to use as a numerator and denominator in a Giant One, then find the value of x.

$$\frac{3}{4} \cdot \boxed{} = \frac{x}{6}$$

b. Looking at J.R.'s work, Leticia said, *"I see it differently. We just need to find some number that when divided by 6 you get 3/4. We can undo the division by multiplying each side of the proportion by 6 like this."* Then Leticia showed J.R. the work below.

$$\left(\frac{6}{1}\right)\frac{3}{4} = \frac{x}{6}\left(\frac{6}{1}\right)$$

c. Explain how Leticia's idea works. Are the two ratios still equal? Why did she choose to multiply by 6? Simplify each side of the equation.

Avner asked, "*But if multiplying both sides by 6 gets rid of the denominator of the x, then can we use the same strategy to get rid of the 4 in the other denominator? Like when we do Fraction Busters, right?*" Discuss Avner's question and decide if undoing both denominators using a Fraction Buster is a reasonable strategy. Does this help solve the equation?

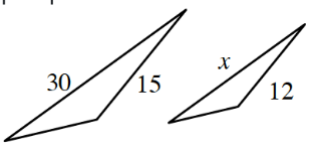
$$\frac{3}{4} = \frac{x}{6}$$
$$\frac{4 \cdot 6}{1}\left(\frac{3}{4}\right) = \left(\frac{x}{6}\right)\frac{4 \cdot 6}{1}$$
$$(6)(3) = (x)(4)$$

Avner's work

7-108 Use the strategies from problem 7-107 to solve the problems below.

a. Use Leticia's method of undoing division to solve this proportion: $\frac{p}{22.5} = \frac{7}{5}$

   When you find p, replace the value in the original proportion to confirm that the two ratios are equal.



b. Write and solve a proportional equation for x for the similar triangles at right. Then use Avner's method of undoing both denominators (Fraction Busters) to solve for x.
c. An apple-juice container has a tiny hole in it, so it is slowly leaking. If the container leaks three ounces every 19 minutes, how long will it take for the 16 ounces of juice in the container to leak out? Write a proportional equation and solve with J.R.'s strategy of using a Giant One.

7-109 For each problem below, decide if the situation is proportional. If the problem is proportional, say so, and then solve the problem using any strategy you choose. If the problem is not proportional, explain why not, and then solve the problem.

a. Steve drove 130 miles from Portland to Tacoma in 2 hours. If he continues to drive at the same speed, how long will it take him to drive 390 miles?
b. At an amusement park, you pay a $15 entrance fee and then $4 for each ride you go on. How much will it cost you to go on seven rides?
c. Armando has collected 39 bottle caps in the past three months. At this rate, how many bottle caps will he have in five months?
d. The grocery store sells 3 limes for 99 cents. At this rate, how much will a dozen limes cost?
e. Margaret drove her friends to a movie. She drove for 30 minutes at 10 miles per hour in heavy traffic, and then she drove for 15 minutes at 40 miles per hour. How far did she travel in those 45 minutes?

7-110 After Ramona had solved several proportional equations, she noticed a pattern. "*When we eliminated both of the fractions by multiplying by both denominators, we ended up with something that looks like we just multiplied diagonally.*"

$$\frac{10}{4} = \frac{x}{7}$$
$$(7)(10) = (x)(4)$$

a. What does she mean? For each of the proportions below, apply Ramona's diagonal multiplying pattern and determine whether the result is a true mathematical equation. Will her pattern always work?

i. $\frac{8}{10} = \frac{12}{15}$

ii. $\frac{6}{4} = \frac{9}{6}$

iii. $\frac{15}{3} = \frac{20}{4}$

b. Use Ramona's pattern to solve the equation $\frac{2}{5} = \frac{11}{x}$ for x.

7-112 Solve the proportions using any strategy you choose. Show all of your steps.

a. $\frac{35}{70} = \frac{x}{100}$

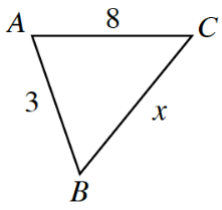
b. $\frac{12}{33} = \frac{m}{11}$

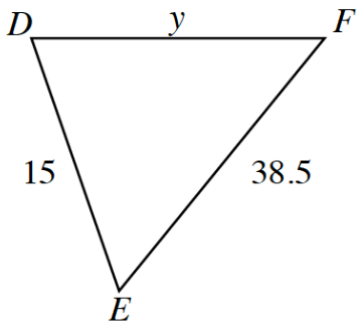
c. $\frac{x}{15} = \frac{12}{75}$

d. $\frac{4}{32} = \frac{10.5}{x}$

7-113 Triangle ABC is similar to triangle DEF.

a. Find the scale factor from triangle ABC to triangle DEF.
b. Find x.
c. Find y.





PROPORTIONAL RELATIONSHIPS 4.2.1, 4.2.2, and 4.2.4

A **proportion** is an equation stating the two ratios (fractions) are equal. Two values are in a proportional relationship if a proportion may be set up to relate the values.

For more information, see the Math Notes boxes in Lessons 4.2.3, 4.2.4, and 7.2.2 of the *Core Connections, Course 2* text. For additional examples and practice, see the *Core Connections, Course 2* Checkpoint 9 materials.

Example 1

The average cost of a pair of designer jeans has increased $15 in 4 years. What is the unit growth rate (dollars per year)?

Solution: The growth rate is $\frac{15 \text{ dollars}}{4 \text{ years}}$. To create a unit rate we need a denominator of "one." $\frac{15 \text{ dollars}}{4 \text{ years}} = \frac{x \text{ dollars}}{1 \text{ year}}$. Using a Giant One: $\frac{15 \text{ dollars}}{4 \text{ years}} = \frac{4}{4} \cdot \frac{x \text{ dollars}}{1 \text{ year}} \Rightarrow 3.75 \frac{\text{dollars}}{\text{year}}$.

Example 2

Ryan's famous chili recipe uses 3 tablespoons of chili powder for 5 servings. How many tablespoons are needed for the family reunion needing 40 servings?

Solution: The rate is $\frac{3 \text{ tablespoons}}{5 \text{ servings}}$ so the problem may be written as a proportion: $\frac{3}{5} = \frac{t}{40}$.

One method of solving the proportion is to use the Giant One:

$$\frac{3}{5} = \frac{t}{40} \Rightarrow \frac{3}{5} \cdot \frac{8}{8} = \frac{24}{40} \Rightarrow t = 24$$

Another method is to use cross multiplication:

$$\frac{3}{5} = \frac{t}{40}$$

$$\frac{3}{5} \times \frac{t}{40}$$

$$5 \cdot t = 3 \cdot 40$$

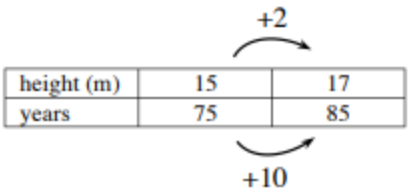
$$5t = 120$$

$$t = 24$$

Finally, since the unit rate is $\frac{3}{5}$ tablespoon per serving, the equation $t = \frac{3}{5}s$ represents the general proportional situation and one could substitute the number of servings needed into the equation: $t = \frac{3}{5} \cdot 40 = 24$. Using any method the answer is 24 tablespoons.

Example 3

Based on the table at right, what is the unit growth rate (meters per year)?



Solution: $\frac{2 \text{ meters}}{10 \text{ years}} = \frac{2 \text{ meters} \cdot \frac{1}{10}}{10 \text{ years} \cdot \frac{1}{10}} = \frac{\frac{1}{5} \text{ meter}}{1 \text{ year}} = \frac{1}{5} \frac{\text{meter}}{\text{year}}$

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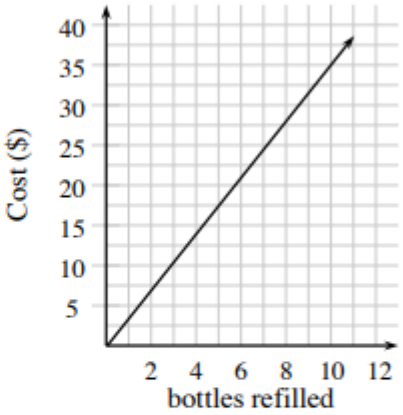
15. Use the table at right to determine how long it will take the Spirit club to wax 60 cars.

cars waxed	8	16	32
hours	3	6	12

16. While baking, Evan discovered a recipe that required $\frac{1}{2}$ cups of walnuts for every $2\frac{1}{4}$ cups of flour. How many cups of walnuts will he need for 4 cups of flour?

17. Based on the graph, what would the cost to refill 50 bottles?



18. Sam grew $1\frac{3}{4}$ inches in $4\frac{1}{2}$ months. How much should he grow in one year?

19. On his afternoon jog, Chris took 42 minutes to run $3\frac{3}{4}$ miles. How many miles can he run in 60 minutes?

20. If Caitlin needs $1\frac{1}{3}$ cans of paint for each room in her house, how many cans of paint will she need to paint the 7-room house?

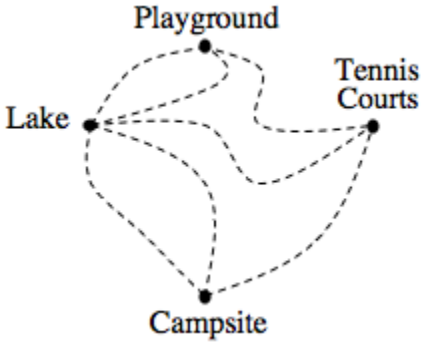
21. Stephen receives 20 minutes of video game time every 45 minutes of dog walking he does. If he wants 90 minutes of game time, how many hours will he need to work?

22. Sarah's grape vine grew 15 inches in 6 weeks, write an equation to represent its growth after t weeks.

23. On average Max makes 45 out of 60 shots with the basketball, write an equation to represent the average number of shots made out of x attempts.

MATH 7+ - PUZZLE INVESTIGATOR PROBLEM (PIP) 10 - MAKING TRACKS!

Vu got a new bicycle for her birthday and cannot wait to ride it all around her favorite park. To find out which paths are best, she wants to ride each of them exactly once, without repeating any path and without missing any. When she can do this, it is called an "Euler" (pronounced "oy-ler") path after a mathematician who investigated similar paths.



The map of the park is shown at right. Vu needs to decide where her mother should drop her off to begin her ride.

a. Is it possible for Vu to ride each trail exactly once without repeating any path and without missing any?

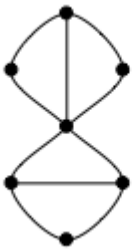
- If it is possible, show all the possible ways for her to do this.
- If none exist, find a new path you could add to the park to create a Euler path.

b. The park manager is planning to add a parking lot as a new point on the map. It will need to be connected to at least one of the other locations in the park with a path. Propose a location of a parking lot and at least one other path so that the park will have a Euler path. Remember that to be a Euler path, it must use all the paths exactly once.

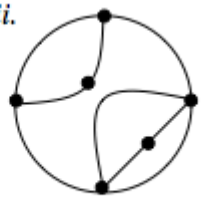
c. Vu is thinking about going to one of the parks shown below. Which of them have Euler paths? Which do not? If a Euler path exists, show where Vu could start and stop her ride, and use arrows to show the direction she should travel. Look for reasons why some parks have Euler paths and others do not.

i.

ii.



iii.



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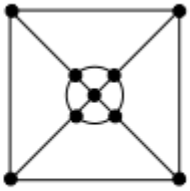


d. Draw two new parks that have Euler paths and two that do not.

e. Why do some parks have Euler paths and others do not?

Salamanders: the reigning regenerators of the animal kingdom

By How Stuff Works, adapted by Newsela staff on 10.21.19
Word Count **421**
Level **1080L**

Image 1. A salamander strikes a T. rex-style pose. Salamanders can regenerate limbs lost in battle or through other injuries. Photo by: Vittorio Ricci via Getty Images

If a salamander gets in a fight, it may surrender its tail to the enemy. Hopefully, the tail will distract the attacker and allow the salamander to scurry away. After all, it can grow a new one in just a few weeks' time. This is a pretty complex process, but regeneration involves shuffling around the cells at the wound site and assigning them a new specialization.

Within the first hours after losing a body part, the salamander's epidermal, or skin, cells in the area migrate to cover the open flesh. That layer of cells slowly thickens in the following days, forming a structure called an apical epithelial cap. Cells within the salamander's tissues called fibroblasts also congregate beneath that epidermal covering. Fibroblasts are undifferentiated. This means that they're free to become many different types of cells, depending on which body part needs replacing.

After that initial phase, the mass of fibroblasts develops into the blastema, which will eventually become the replacement body part. Researchers recently discovered that the expression of a

protein called nAG kick-starts blastema growth. The blastema is similar to human stem cells in that it has the potential to grow into various limbs, organs and tissues. The genetic coding in the blastema contains a positional memory about the location and type of missing body part. That data is stored in the Hox genes in the fibroblast cells. Hox genes are a group of genes that specify the regions of an organism's body.

Regrowing Body Parts Is Complicated

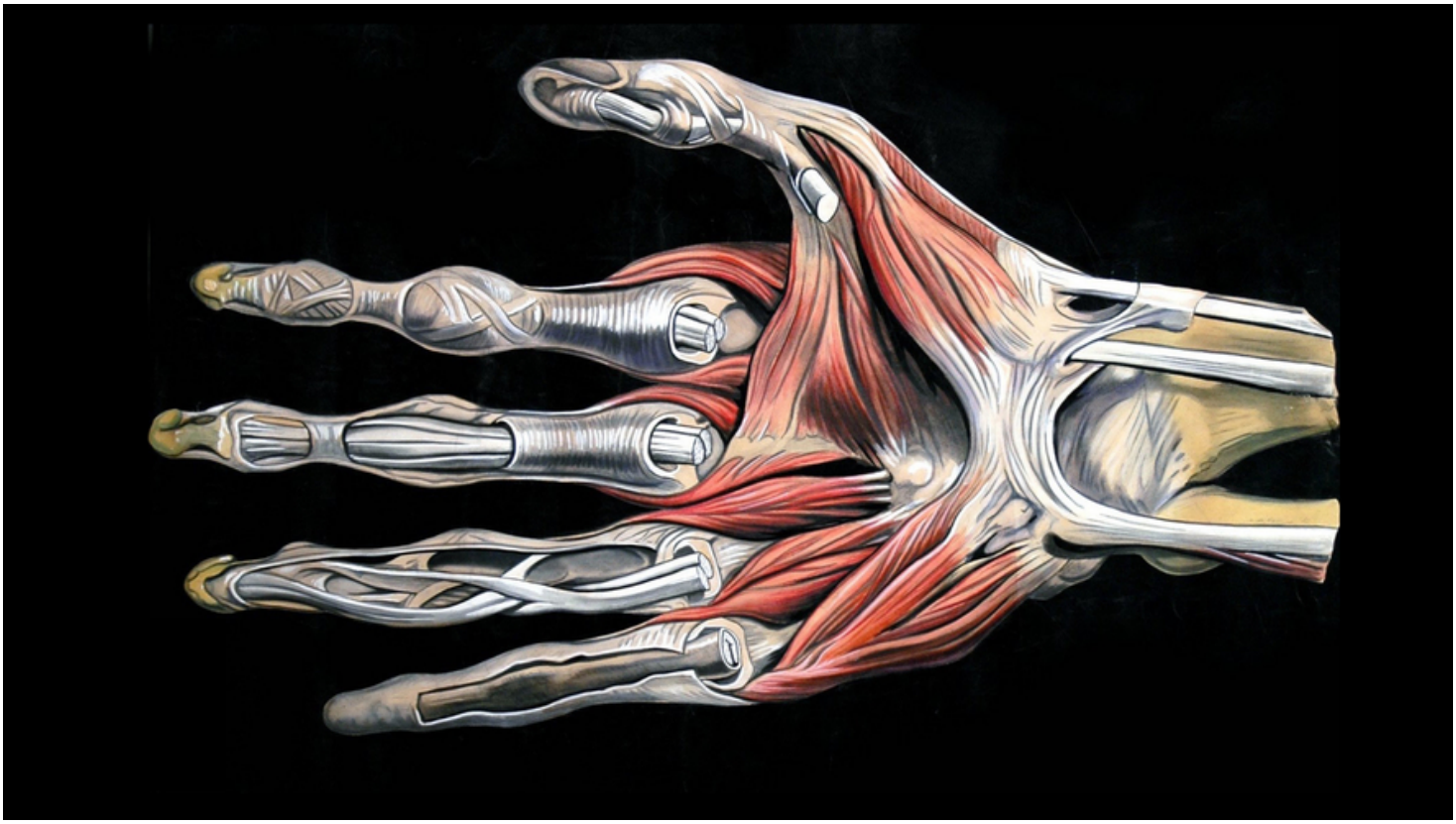
While this is happening, capillaries and blood vessels are regenerating into the blastema. As the blastema cells divide and multiply, the resulting mass becomes a bud of undifferentiated cells. Before that mound becomes a full-fledged limb, tail or other body part, it must receive stimulation from nerves. However, when salamanders drop their tails, they lose not only flesh but also nerves. That means that nerves at the wound site are regenerating at the same time as tissue, bone and muscle.

From there, the cells differentiate and create the appropriate body part. The blastema is designed to grow in the proper sequence to avoid defective regeneration. It is part of the positional memory in the fibroblast cells. For example, if a salamander loses a foot at its ankle, the blastema will develop outward to form a foot instead of an entire leg.

With the salamander as the blueprint, scientists hope to someday engineer blastemas from human cells. Until then, our amphibian friends are still the reigning regenerators of the animal kingdom.

Learning how the bones and muscles work together

By Gale, Cengage Learning, adapted by Newsela staff on 11.13.17
Word Count **802**
Level **960L**



A drawing of the muscles of the hand and wrist from the 1900s. Image by: Elisa Schorn/Double-M/Wikimedia.

Whenever you run, sit, walk or even stand, your bones and muscles are working together. Bones provide the shape and protection for our bodies. Our bones also produce our much-needed supply of daily blood cells — about 200 billion a day! They are the holding places for minerals and other key substances.

Many muscles are attached to bones and they pull the bones for movement. Other muscles play important roles in daily life, allowing you to breathe, swallow, smile and move your eyes. The heart muscle powers your entire body by pumping blood cells through it.

Bones, Bones, Bones

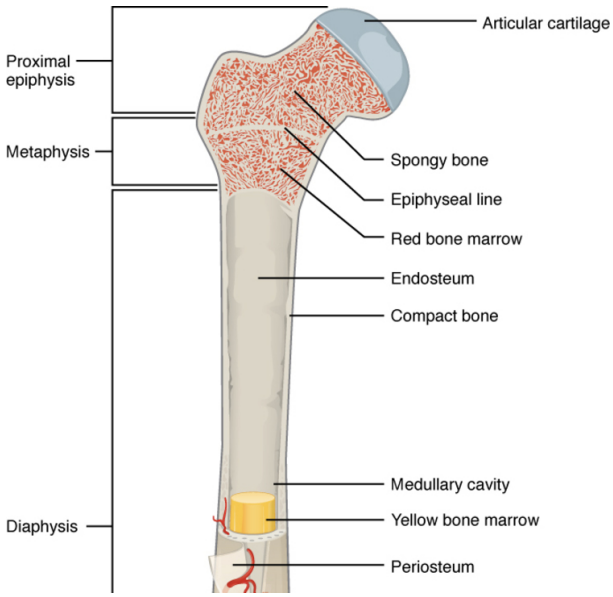
An adult body has about 206 bones. Some bones are responsible for movement, including bones in the hands, feet and limbs. Other bones, like your skull or ribs, primarily give protection to internal organs.

Bones are full of activity, and they grow and change along with a person. About 70 percent of an adult's bones are composed of minerals, and the remaining part is bone tissue, or groups of similar cells with the same behavior. Humans are made of millions of cells, which all do different things. The cells in bone tissue constantly make new bone, essentially making a whole new skeleton about every seven years.

Wherever two bones meet, there is a joint. Most joints are movable and are coated with fluid. Ligaments are a tough connective tissue that link bones together at the joints. Cartilage is another connective tissue found at the end of the bones and in the joints. This is a smooth and bendable tissue that lets one bone slide smoothly over another.

Hard And Spongy

The outside of the bone is a hard layer of living cells called compact or hard bone. Holes run through the compact bone, carrying blood vessels and nerves to its inner parts. Inside this layer is cancellous bone or spongy bone. Cancellous bone has cells with large spaces in between them like a honeycomb. The spaces in this network are filled with a jellylike red-and-yellow bone marrow. Red bone marrow, found mainly at the ends of bones, makes most of our body's blood cells. This includes red blood cells, which carry oxygen around the body. It also includes white blood cells, which help fight infection. Finally, red bone marrow makes platelets, which help blood clump together to form scabs. Yellow bone marrow stores fat and releases it as needed.



Bones contain large amounts of a protein called collagen, which gives them their stretchiness. Bones also contain many minerals. One important mineral, calcium, gives bones their strength.

As a person gets older, bones can become weak. Osteoporosis is a disease in which bone tissue becomes breakable and thin. This disease is most common among older people. Getting enough calcium as a young adult can help prevent or delay this disease.

Muscular Strength

Bones are moved by muscles. Small, thin tissues called tendons fasten muscles to bones and to other muscles.

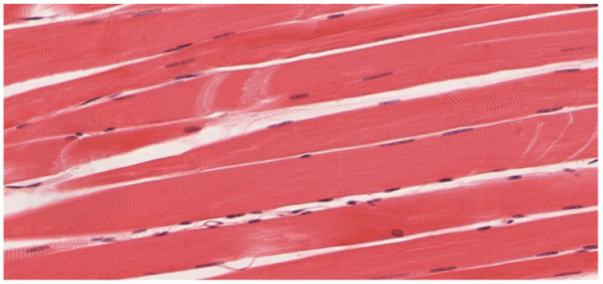
The human body has about 650 muscles, which come in all shapes and sizes. They are classified as voluntary or involuntary. Voluntary muscles are those you can control, like when you move your arm. Involuntary muscles act without you thinking about them, like your stomach muscles when they help break down food. Some muscles fit into both categories, such as the muscle used to blink your eyes.

Muscles are made of stacks of long, thin cells called muscle fibers. There are three types of muscle fibers, referred to as skeletal, smooth and cardiac. Skeletal muscle fibers, the most abundant and largest of the three, are attached to bone and are voluntary muscles. Most cells only have one

nucleus, a structure that stores DNA, but each skeletal muscle fiber has several. Smooth muscle fibers are smaller than the skeletal muscles and are narrow at the ends. They are involuntary, and examples include the stomach and intestines. Cardiac muscles are also involuntary, and they are found only in the heart. These muscles have fibers that are tightly packed together and have branches.

Muscles work in pairs to move bones by contracting and relaxing. Whenever you bend your arm, for example, the bicep muscle in the front of the upper arm contracts. When the arm straightens, the bicep relaxes and the tricep muscle at the back of the upper arm contracts.

Muscles get energy from the food we eat. Exercise is also good for muscles. When a person exercises, the muscle fibers grow and blood flow increases. This helps avoid muscle fatigue, which happens when muscle cells run out of oxygen and cannot contract as much.



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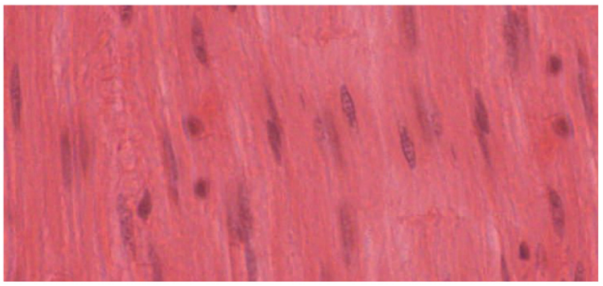

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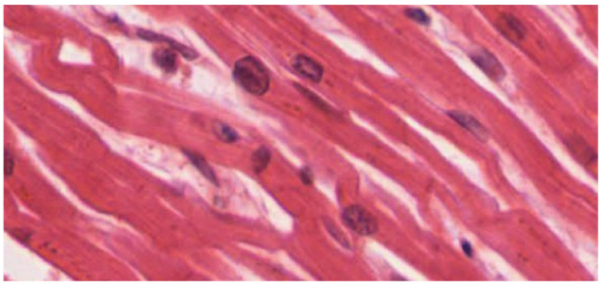


(c)

Partition and Partnership – PART 3

Benchmark Standard	**Geography Standard 4b**: Students will explain how conflict and cooperation among people contribute to the division of the Earth's surface into distinctive cultural and political territories.
Grade Band	6-8
Vocabulary / Key Concepts	**Conflict:** Incompatibility of one idea, desire, event, or activity with another **Dams:** Structures built across a river to control the flow of water **Environment:** The sum of the conditions that surround and influence an organism **Flood**: The rising and overflowing of a body of water onto land that is not normally covered with water

ACTIVITY 1: Use the map on page 2 to answer the following questions:

1. Where are the headlands of the Nile?
2. Where are the headlands of the Tigris and Euphrates?
3. How might people in upstream areas influence people living downstream?
4. In general, discuss how this could lead to potential problems of conflict and cooperation.

ACTIVITY 2: Read the Water Map Sets on pages 2 and 3 to answer the following questions:

1. How are settlement patterns related to watersheds and river basins? Explain and support your answer.
2. True or False: Watersheds are functional regions based on water use. Explain how you know.
3. True or False: Countries are formal political regions. Explain how you know.

ACTIVITY 3: Read the article "Water in the Middle East: Conflict or Cooperation?" (pages 4 & 5) and answer the following questions:

1. Explain the water problem in the Middle East.
2. How might this problem lead to conflict and present opportunities for cooperation?

ACTIVITY 4: Thinking like a Geographer – Read the article "Do Good Fences Really Make Good Neighbors?" on pages 5 & 6. Observe Map 1 and answer the following questions for Map 1

MAP 1

1. How might partitioning the city lead to peace among the city residents of different faiths? In what ways might this traditional solution lead to increased conflicts?
2. How might this map change if present trends continue?

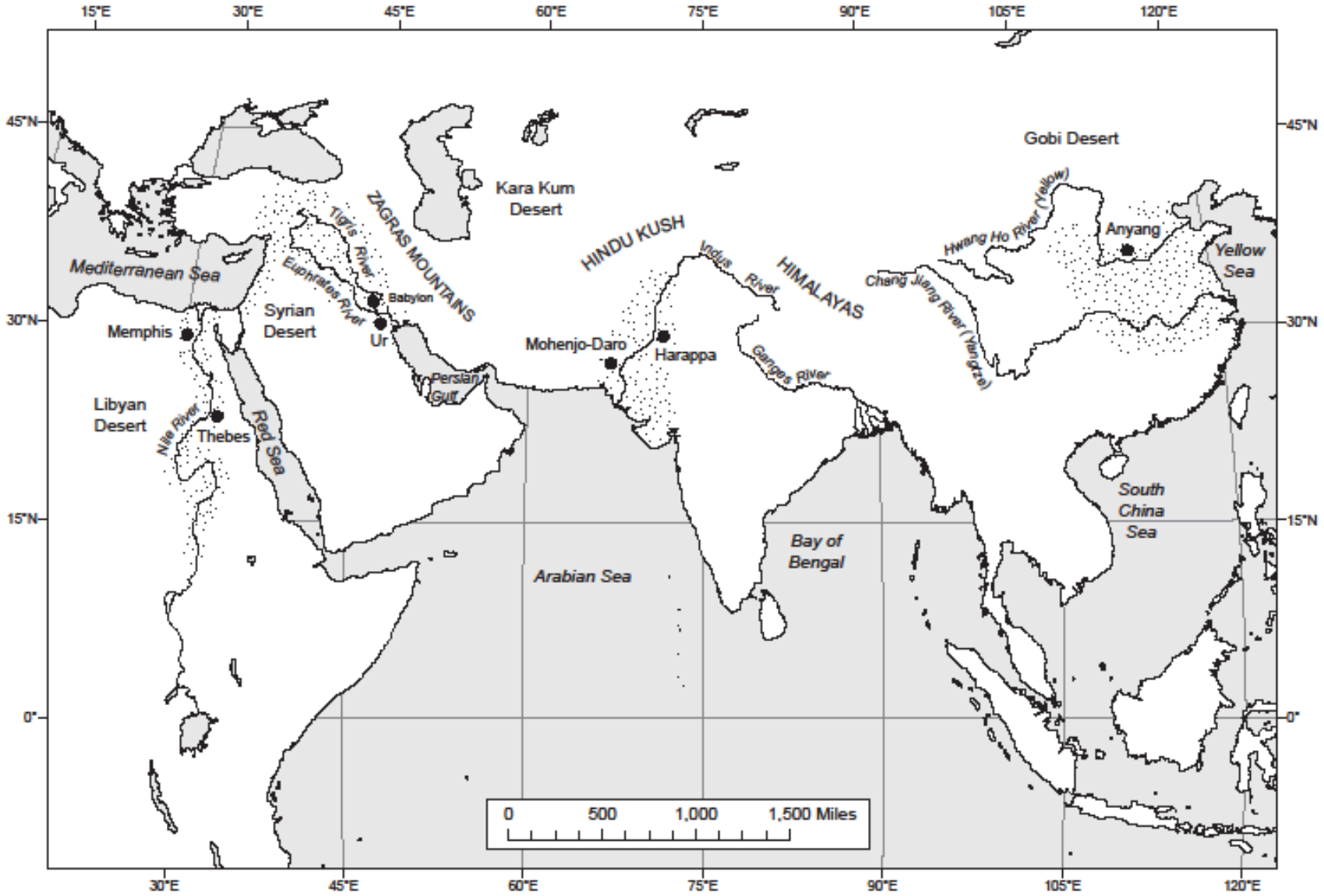
MAP 2

1. Which quarter is likely to have the most visits from people of other faiths?
2. Use the map to plan a route for a tour group from each of the religious faiths. Which group will have the most contact with people from other faiths?
3. Which group is likely to have the least contact?
4. Based on the map, what places in the Old City might have the most potential for conflict?
5. What steps might leaders take to reduce misunderstandings and conflicts in the Old City? Be specific.

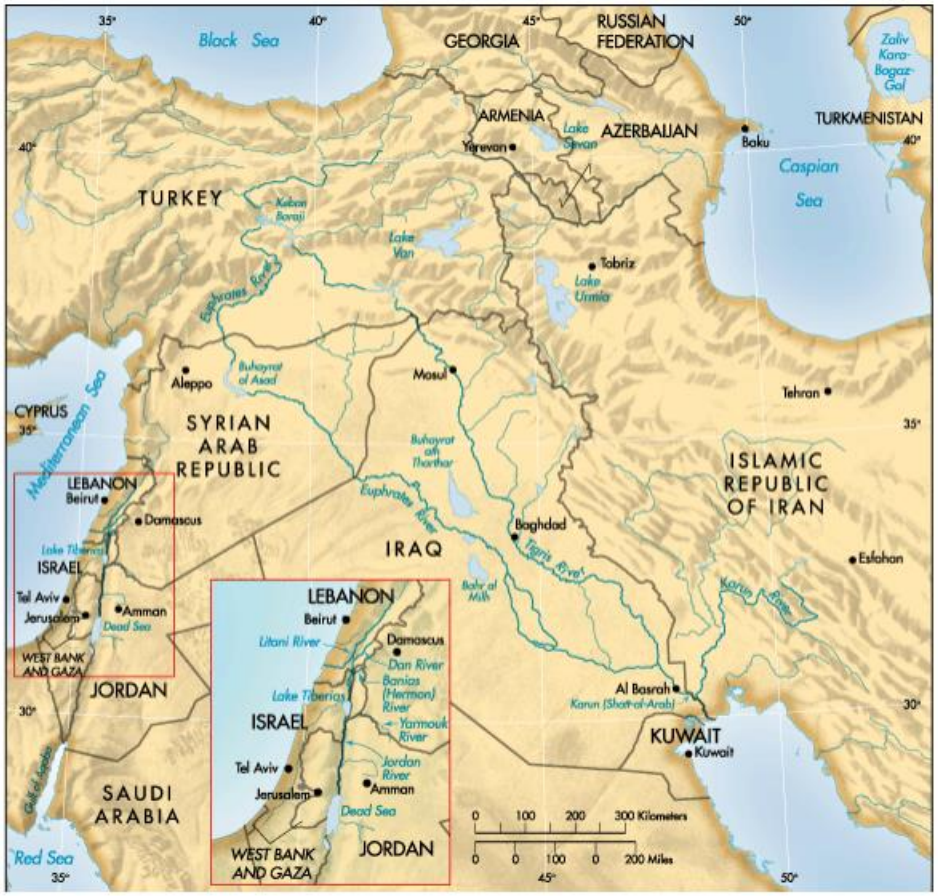
ACTIVITY 5: Check for Understanding:

1. How does conflict and cooperation among people contribute to the division of the Earth's surface into distinctive cultural and political territories? Explain and support your answer with evidence from this lesson.

Cradles of Civilization (Labeled)



Courtesy: Arizona Geographic Alliance http://geoalliance.asu.edu/azga
School of Geographical Sciences and Urban Planning
Arizona State University
Cartographer Becky L. Eden Cradles_Labeled.PDF07

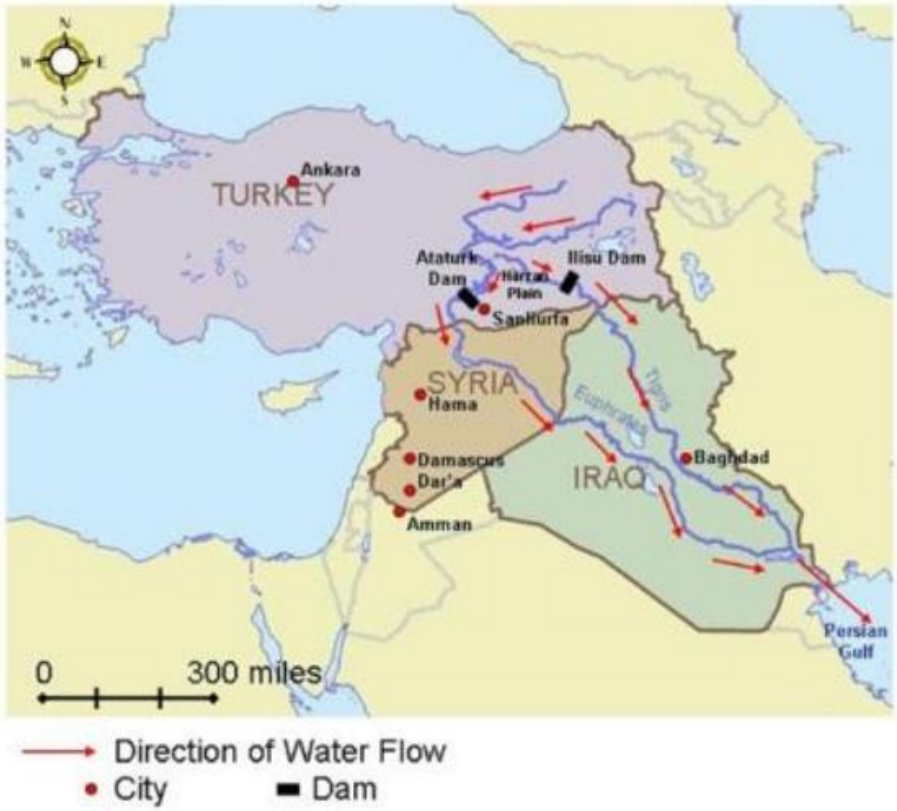


Water in a Dry Landscape

Large bodies of water border the arid landscapes in the Middle East. Notice how many river systems begin in the highlands areas of Turkey, Iran, and Iraq.

Thinking like a Geographer:

- Name five large bodies of water that border Middle Eastern lands.
- Name three rivers that begin in the highlands areas. Trace the course of each river. Which large body of water does the river drain into?



Water Always Flows Downhill

The Euphrates River flows through Turkey, Syria and Iraq on its way to the Persian Gulf.

Thinking like a Geographer

- How might the dams in Turkey benefit those living downstream?
- Why might Syrian and Iraqi governments want a say in the operation of the dams?
- Use the direction of river flow shown on this map to identify the highest elevations.

The Tigris and Euphrates Watershed

Watershed Area

A watershed is an example of a ***functional region***. Decisions made by people within this area affect the lives, opportunities and activities of others in the region, even when they live hundreds of miles away.

Functional regions are defined by the way people use the space, and the borders of the functional region can cross over ***formal regions*** like countries.

- How many countries share the Tigris-Euphrates Watershed?

Water in the Middle East: Conflict or Cooperation?

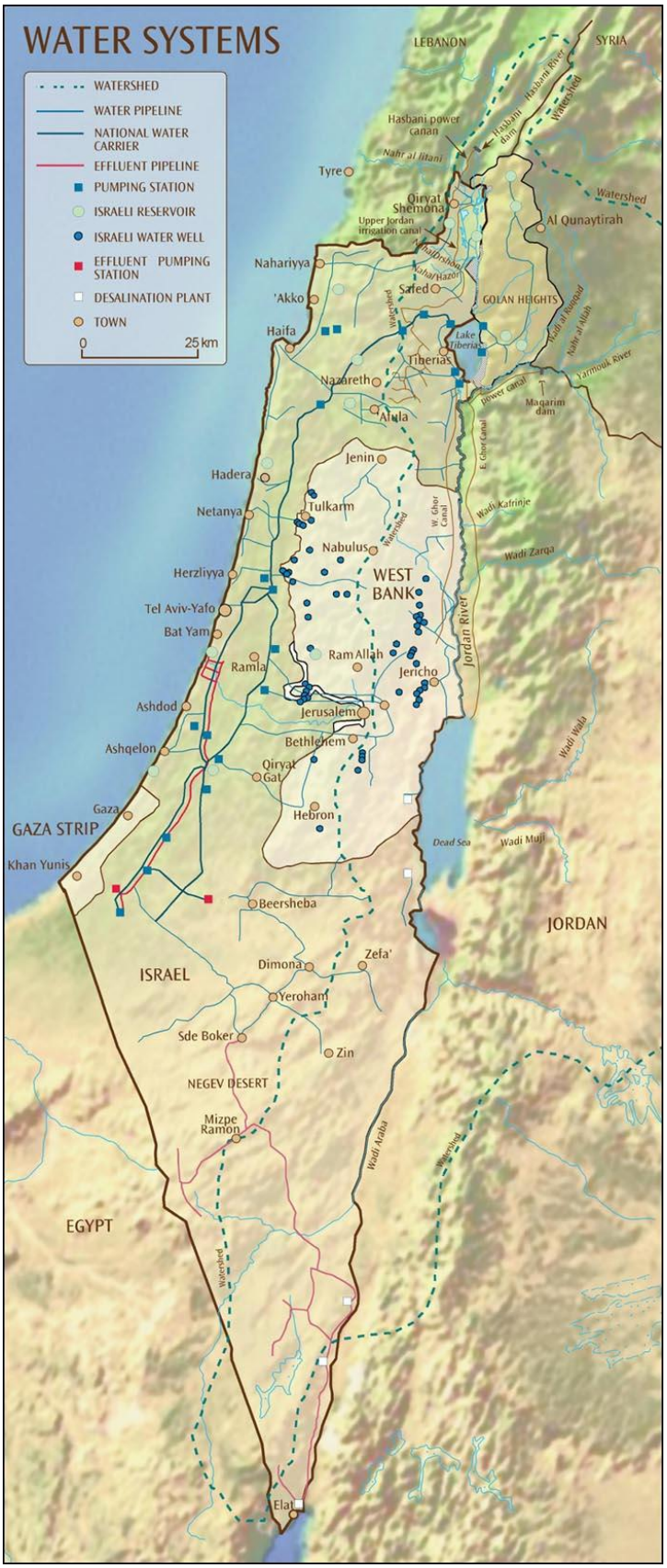
In the Middle East, water is scarce and oil is plentiful. We hear often about the value of the crude oil deposited under desert sands in many countries of the region. We know that oil often leads to conflicts and war, but can also be the basis of trade partnerships and agreements. But as populations in the region expand and climate warms, attention turns to water. Will this scarce resource bring the region more bitter conflict and division? Or might people of the region cooperate to conserve and develop water resources for the good of all?

Water Sources

In most of the Middle East, rainfall is a welcome event. In arid climates, winter is the time when some scant precipitation can be expected. Homes are built with cisterns on the roof to capture and store water for the dry months to come. Municipalities do the same. More rain falls in mountain and highland areas. Most of the rivers of the region begin in the mountain areas of Turkey and Iraq. As they flow to the seas, each of these streams is tapped for drinking water, irrigation, and industry. Each of the rivers also is used to carry away waste. Improved technology allows governments and industries to drill deep into aquifers beneath the dry lands and draw up stored water. New desalination plants along the Mediterranean Sea use expensive new equipment to remove the salt from sea water. Yet all these sources of water cannot supply the expanding population.

Conflict or Cooperation: A Regional Choice

Competition for water produces winners and losers. Some settlements and businesses with access to water prosper, while others struggle to survive. Palestinians complain that Israeli policies unfairly favor Jewish farmers and housing



complexes. They point out that giant Israeli wells are pumping water from the aquifer under Palestinian lands. As resentment builds, other people in the region are suggesting ways people can work together to make the most of the available water resources. They suggest that everyone should work together to conserve, recycle and reuse water. They suggest sharing the expense - and the benefits - of large, expensive projects for the benefit of all. This thirsty region can't wait for a political solution, they insist. The water problem must be solved now!

DO GOOD FENCES REALLY MAKE GOOD NEIGHBORS?

People have tried to avoid conflict by using two strategies within the Old City: partnership and partition. In Jerusalem's Old City, both partnership and partition can be seen at the same time.

The City of Jerusalem became the capital city of Israel almost 3,000 years ago. Through the centuries the city has become a religious center. It has played an important role in the development of three of the world's religions: Judaism, Christianity and Islam. The Jews, Christians, and Muslims who live in the Middle East have a strong attachment to the land where their ancestors worshiped and where important religious events took place. People who live outside the Middle East often have a keen interest in visiting the city, especially the old walled city near the temple.

Partitioning the Holy City

Jews, Christians and Muslims live in Jerusalem, but sharing the city space has not always been peaceful. Religious differences have often boiled over into violence within the city, and outside forces have sometimes tried to take control of the city and its holy sites as well. During the 1600s, the land within the walls of the Old City was partitioned among four groups who laid claims to the territory. Leaders hoped to reduce conflict by allowing each religious group space to do things in their own way. Inside their neighborhoods they could follow their own customs, speak their own language, and worship without interference. They would have fewer contacts with people from other groups, and it was hoped that this would lead to peace.

… [N]o one expects to see an end to partitions in the Old City. This traditional land division has reduced conflict and allowed each group to maintain its traditions for hundreds of years.

Today the people of the Old City of Jerusalem still live in sections defined by religion. Each of the sections of the city is called a 'quarter,' although they are not of equal size. The largest territory belongs to the Muslims. The Christian Quarter and the Armenian Quarter are controlled by two branches of Christianity. The remaining section near the wall of the old temple belongs to the Jewish residents. See Map 1 (page 7). For most of the last 500 years, people have been peaceful within the traditional partitions of the Old

City. But population in the region, and in the Old City of Jerusalem, is changing. Christians have largely migrated away from Jerusalem. As they leave, Muslims or Orthodox Jews try to purchase their houses. Many people predict that the Christian Quarter will gradually become smaller or may someday disappear. Others predict that the lines between the quarters may become less defined. But no one expects to see an end to partitions in the Old City. This traditional land division has reduced conflict and allowed each group to maintain its traditions for hundreds of years.

Partnership and Cooperation

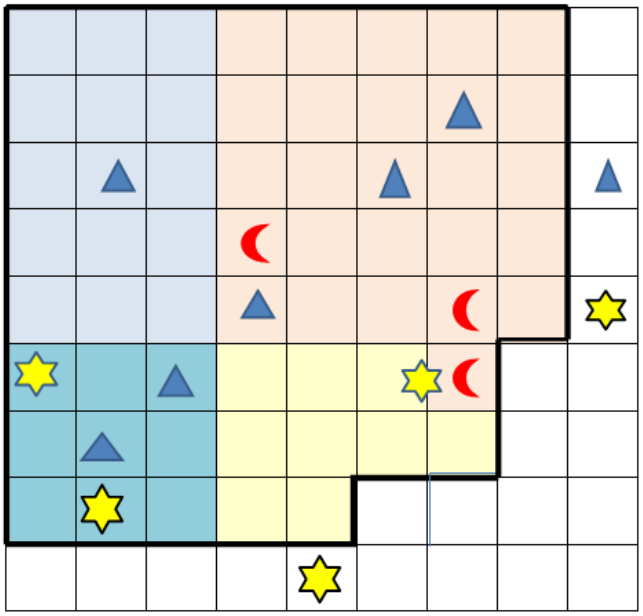
The Old City of Jerusalem contains numerous holy sites and shrines. Many of the events in the holy scriptures of the Jews, the Christians and the Muslims happened here. It was here that King Solomon built the Jewish Temple. Christians believe that Jesus was born in near-by Bethlehem, taught in the same temple, and was finally executed and buried within the walls. Muslims believe that the prophet Mohammed was raised to heaven to speak with other prophets at the place called the Dome of the Rock. All of these places are very close together, but are not always within the quarter assigned to their religion. See Map 2 (page 7).

Followers of each religion want access to the holy places to worship. Religious pilgrims come from all over the world to visit the holy sites. All of this movement can lead to tensions, but a partnership of sorts has allowed thousands of people to visit the shrines and holy sites each year. Religious leaders and groups have made public statements in support of access to all the holy sites. The government of Israel and the city government of Jerusalem allow most visitors to come and go freely. All visitors are asked to respect the sites they visit and other visitors.

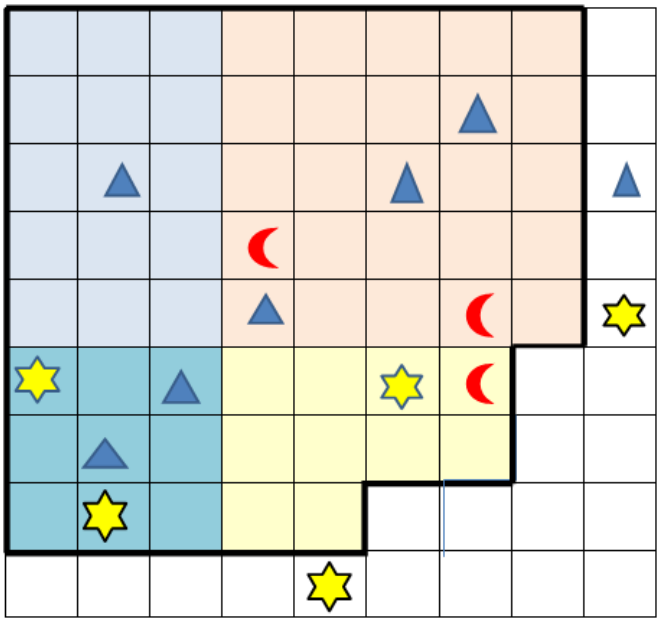
> It is essential that Jerusalem remains an open city, with full access to the religious sites which are holy to three faiths.
> – Justin Welby, Archbishop of Canterbury, June 27, 2013

This partnership is not perfect. Every day, people stream through the gates of the Old City to visit the holy places. The streets are crowded with residents, tourists, and vendors of souvenirs. Contacts between people from different cultures and backgrounds can lead to misunderstandings and disagreements. Crowded conditions can lead to competition. At times security concerns cause police to restrict access to one or more of the sites. There are occasional threats or incidents of violence. But most leaders in Jerusalem, in Israel and around the world agree that this partnership is worth keeping. They look for ways to make the partnership last and work better for all concerned.

MAP 1



MAP 2:



LEGEND:

	Christian Quarter			Old City Wall
	Armenian Quarter		▲	Christian Shrine or Holy Site
	Muslim Quarter		☾	Muslim Shrine or Holy Site
	Jewish Quarter		✡	Jewish Shrine or Holy Site