

CHAPTER 18 - OBJECTIVES

LEARNING OBJECTIVES

After completing the reading and assigned activities related to this chapter, students will be able to do the following:

1. Demonstrate an understanding of the terminology related to Paper.
(by correctly completing the vocabulary, paper movie question sheet, and Paper Fundamental Sheet)
 - a. Describe a parent sheet.
 - b. Identify characteristics of paper (weight, finish, thickness, brightness, opacity, grain direction)
 - b. Describe a watermark on paper
 - c. Describe wire versus felt side of paper
 - d. Describe Forest Stewardship Council (FSC) certified papers

2. Demonstrate an understanding of the different types of paper.
(by correctly completing Identify Paper Types Sheet)
 - a. Identify non-traditional specialty substrates (carbonless, pressure sensitive, gummed label, plastic based, metal based)
 - b. Discuss the impact that substrates have on a printed project
 - c. Describe paper characteristics of paper that are used for digital printing versus offset (weights and sizes)
 - d. Recognize the types of paper that are unsuitable for digital printing
 - e. Identify types of specialty paper that are used with digital printing
 - f. Describe the importance of paper conditioning prior to running the digital press
 - g. Assemble a sample pack of five papers printed from same file on a digital press
 - h. Evaluate print quality of the five papers printed on digital press
 - i. Discuss sustainability / recyclability of pulp based substrates
 - j. Debate sustainability of print versus digital media

3. Demonstrate an understanding of the characteristics and physical properties of paper.
(by correctly completing Paper Fundamental Sheet)
 - a. Identify characteristics of paper (weight, finish, thickness, brightness, opacity, grain direction)
 - b. Identify weight, coating, and size from a label found on a ream, box, or skid of paper
 - b. Identify wood pulp based paper substrates
 - c. Determine grain direction of paper, short and long
 - d. Describe the importance of grain direction, how it affects the running of a press, folding, scoring, & binding
 - e. Review common paper types, weights, grades and classifications used in the printing industry
 - f. List common page and sheet sizes used in United States and Europe

4. Demonstrate an understanding of basic math. (bellwork/CPS clickers/Assignment 4- Paper cutting)
 - a. Calculate basic paper cuts from a parent sheet, considering job requirements and grain direction
 - b. Draw a layout of cuts required for an instructor specified printed job
 - c. Create numbered sequence of cuts for an instructor specified job
 - d. Describe maximum imaging area versus maximum substrate size
 - e. Assess instructor supplied paper samples for suitability when cutting

CHAPTER 18 - OBJECTIVES

CODE TO RELATE TO OTHER STANDARDS

***PrintEd - Introduction Graphic Communications**

- IGC F. 73) Discuss the impact that substrates have on a printed project
- IGC F. 74) Identify wood pulp based paper substrates
- IGC F. 75) Review common paper types, weights, grades and classifications commonly used in the printing industry
- IGC F. 76) List common page and sheet sizes used in United States and Europe
- IGC F. 77) Describe Parent Sheet
- IGC F. 78) Identify non-traditional specialty substrates
- IGC F. 79) Gather examples of pulp, plastic and metal based substrates
- IGC F. 80) Discuss sustainability / recyclability of pulp based substrates
- IGC F. 81) Debate sustainability of print versus digital media
- IGC F. 82) Describe Forest Stewardship Council (FSC) certified papers
- IGC G. 83) Determine grain direction of paper
- IGC G. 84) Explain the importance of grain direction

***PrintEd - Digital Production Printing**

- DPP A. 32) Describe the characteristics of paper that are used for digital printing versus offset
- DPP A. 33) List common weights of papers that are used in digital printing
- DPP A. 34) List common sizes of paper that are used in digital printing
- DPP A. 35) Explain the importance of paper grain direction
- DPP A. 36) Distinguish short and long grain papers
- DPP A. 37) Describe maximum "imaging area" versus maximum substrate size
- DPP A. 38) Describe the importance of paper conditioning prior to running the digital press.
- DPP A. 39) Recognize the types of paper that are unsuitable for digital printing
- DPP A. 40) Identify types of specialty paper that are used with digital printing
- DPP A. 41) Assemble a sample pack of five papers printed from same file on a digital press
- DPP A. 42) Evaluate print quality of the five papers printed on digital press

***PrintEd - Offset Press Operations / Bindery & Finishing**

A. Offset Press Configurations

- OPO A. 6) Identify common maximum sheet sizes of sheetfed offset presses

B. Paper

- OPO B. 26) Identify characteristics of paper
 - a. Weight
 - b. Finish
 - c. Thickness
 - d. Brightness
 - e. Opacity
 - f. Grain Direction
- OPO B. 27) Identify weight, coating, and size from a label found on a ream, box, or skid of paper
- OPO B. 28) Determine grain direction of five different types of papers used in the offset printing process
- OPO B. 29) Describe how grain direction will affect the running of a press, folding, scoring, and binding
- OPO B. 30) Describe wire versus felt side of paper
- OPO B. 31) Describe a watermark in paper
- OPO B. 32) Identify specialty substrates
 - a. Carbonless
 - b. Pressure Sensitive
 - c. Gummed Label
 - d. Plastic Based
 - e. Metal
- OPO B. 33) Explain the importance of paper conditioning and describe potential problems that can be created by poor paper conditioning prior to running the press
- BF A. 94) Review the mechanical safety requirements when working with bindery and finishing equipment
- BF B. 107) Define a parent sheet
- BF B. 108) Assess instructor supplied paper samples for suitability when cutting
- BF B. 110) Draw a layout of cuts required for an instructor specified printed job
- BF B. 111) Create numbered sequence of cuts for an instructor specified printed job

CHAPTER 18 - LEARNING ACTIVITIES

PREREQUISITES:

None



LEARNING ACTIVITIES SHEET

Student Name _____

Place a checkmark in the appropriate box as you complete each of the steps below.

- 1. Do** Read Ch. 18: Paper (p.419-456)
- 3. Do** Paper Movie question sheet.
- 4. Do** Assignment Sheet 1, Chapter 18 vocabulary.
- 5. Stop** Have instructor evaluate the completed assignment sheet and if the evaluation is satisfactory, continue to step 5. If the evaluation is not satisfactory, repeat step 4.
- 6. Do** Assignment Sheet 2, Identify Paper Types Sheet!
- 7. Stop** Have instructor evaluate the completed assignment sheet and if the evaluation is satisfactory, continue to step 8. If the evaluation is not satisfactory, repeat step 6.
- 8. Do** Assignment Sheet 3, Paper Fun-damentals!
- 9. Stop** Have instructor evaluate the completed assignment sheet and if the evaluation is satisfactory, continue to step 10. If the evaluation is not satisfactory, repeat step 8.
- 10. Do** Assignment Sheet 4, Paper Cutting
- 11. Stop** Have instructor evaluate the completed assignment sheet and if the evaluation is satisfactory, continue to step 12. If the evaluation is not satisfactory, repeat step 10.
- 12. Do** Chapter 18 - Take Pretest Review.
- 13. Stop** Have instructor evaluate the completed assignment sheet and if the evaluation is satisfactory, continue to step 14. If the evaluation is not satisfactory, fill out the Ch. 18 study guide.
- 14. Take** Chapter 18 Quiz.

Name: _____ Period: _____

Paper Movie Questions

Directions: Watch the movie and answer the questions regarding paper.

1. Who invented paper? _____
2. What is paper made of what type of fibers? _____
3. What combines heat, pressure and cooking liquors to soften and dissolve the lignin?

4. What is done to get the pulp whiter? _____
5. What is the name of the mixture that goes through the forbinger and forced under pressure?

6. What smooths the surface of the stock? _____
7. What is added to increase paper strength, make it smoother, stiffer, more opaque?

8. What makes the paper smoother and thinner? _____
9. What are the seven basic paper properties to take into considerations? _____

10. What is referred to as the pulp direction in paper? _____
11. Paper is stiffer in the direction of the grain, the smooth fold goes _____ the grain.
12. Circle the three most common papers: book bond text cover index offset
13. The paper's bulk is often referred to as the paper _____.
14. What is the difference between the vellum and gloss papers? _____

15. What is used to color paper? _____

Name: _____ Period: _____

Assignment 1: Chapter 18: Paper Vocabulary

Instructions:**Step 1: Rate:** rate your prior knowledge of the word (1=don't know at all, 2-3 = sort of know it, 4= I know it).**Step 2: Describe:** provide a description, explanation, or example of the new term.**Step 3: Restate:** restate the description, explanation, or example in your own term.**Step 4: Graphic Representation:** represent term using simple pictures or symbols.

BOOK PAPER	Step 1: 1 2 3 4
Step 4:	Step 2: _____ _____ _____
	Step 3: _____ _____ _____
BOND PAPER	Step 1: 1 2 3 4
Step 4:	Step 2: _____ _____ _____
	Step 3: _____ _____ _____
FOLD STRENGTH	Step 1: 1 2 3 4
Step 4:	Step 2: _____ _____ _____
	Step 3: _____ _____ _____

Name: _____ Period: _____

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FOREST STEWARDSHIP COUNCIL (FCS)	Step 1: 1 2 3 4
Step 4:	Step 2: _____ _____ _____ Step 3: _____ _____ _____
HICKEY	Step 1: 1 2 3 4
Step 4:	Step 2: _____ _____ _____ Step 3: _____ _____ _____
OPACITY	Step 1: 1 2 3 4
Step 4:	Step 2: _____ _____ _____ Step 3: _____ _____ _____

Name: _____ Period: _____

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PARENT SHEET	Step 1: 1 2 3 4
Step 4:	Step 2: _____ _____ _____ Step 3: _____ _____ _____
PICKING	Step 1: 1 2 3 4
Step 4:	Step 2: _____ _____ _____ Step 3: _____ _____ _____
PILING	Step 1: 1 2 3 4
Step 4:	Step 2: _____ _____ _____ Step 3: _____ _____ _____

Name: _____ Period: _____

Assignment 1: Chapter 18: Paper Vocabulary

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SPOILAGE ALLOWANCE	Step 1: 1 2 3 4
Step 4:	Step 2: _____ _____ _____ Step 3: _____ _____ _____
TEAR STRENGTH	Step 1: 1 2 3 4
Step 4:	Step 2: _____ _____ _____ Step 3: _____ _____ _____
WATERMARK	Step 1: 1 2 3 4
Step 4:	Step 2: _____ _____ _____ Step 3: _____ _____ _____

CH. 18 PAPER

Assignment Sheet 2 - Identify Paper Types

Student Name _____ Date _____

BASIC SKILLS



TECHNOLOGY



READING



CRITICAL THINKING

OBJECTIVE

Evaluation Criteria

Rating

- Correctly identify non-traditional specialty substrates _____
- Correctly discussed the impact that substrates have on a printed product _____
- Correctly describe paper characteristics that are used for digital printing versus offset (weights and sizes) _____
- Identify types of paper that are unsuitable for digital printing _____
- Identify specialty paper that are used with digital printing _____
- Describe the importance of paper conditioning prior to running the digital press _____
- Assembled 5 sheets of paper and printed a digital file on it _____
- Evaluated print quality of the five papers _____
- discussed sustainability/recyclability of pup based substrates _____
- Debate sustainability of print versus digital media _____
- Identify common max sheet sizes of an offset press _____

DIRECTIONS

Read the questions below and using the internet, find the answers.

1. What are the following non-traditional specialty substrates:

a. carbonless: _____

b. pressure sensitive: _____

c. gummed label: _____

d. plastic based: _____

e. metal based: _____

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2. What impact does substrates have on a printed product? _____

3. Describe paper characteristics that are used for digital versus offset (weight and sizes):

a. offset paper characteristics, weight, and sizes: _____

b. digital paper characteristics, weight, and sizes: _____

4. Recognize the types of paper that are unsuitable for digital printing? _____

5. Identify types of specialty paper that are used with digital printing? _____

6. Describe the importance of paper conditioning prior to running the digital press? _____

Go to the paper closet and select 5 different types of papers, number each sheet 1-5 on the bottom and write the name of the paper on it. (i.e. Husky White Offset 50#, 110# Index white, 80# blue cover, Howard Linen Bright White 20# writing)

Find a color picture on the internet to print out (make sure it is school appropriate).

Put the paper into the Xerox 6280 and print 5 copies of the color picture.

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7. Evaluate the print quality of the five papers printed on the digital press (color, quality of the image, texture). Number each sheet and put your observations by each number.

1: _____

2: _____

3: _____

4: _____

5. : _____

9. Discuss sustainability / recyclability of pulp based substrates? Why is this important? _____

10. Debate sustainability of print versus digital media: _____

11. Identify common maximum sheet sizes of sheetfed offset presses: _____

Names: _____

Assignment Sheet 3 - Paper FUN-damentals!

Directions: Get in your group of 3-4. Take a piece of paper from the table. Compare your paper to the reams on the desk. Write down the information off the ream of paper you have below:

1. What is the name of your paper? _____
2. What is the basic size? _____
3. What is basis (substance) weight? _____
4. What is the grain direction of your paper? _____
5. Circle the type of paper do you have: book bond text cover index offset
6. Hold your paper up to the light. Can you see through your paper? _____
7. The ability of the sheet of paper to block the passage of light is called what? _____
8. When you held your paper up to the light, did you see anything else? _____
if so, what is that called? _____

Compare your paper to the rest of the paper at the table.

9. Now fold your paper like the diagram A suggests. Is the fold smooth or rough? _____

Compare your paper to the rest of the paper at the table.

Using the scissors on the table cut off the excess paper so the paper is square like diagram C.

10. Now fold your paper like the diagram D suggests. One fold is smooth and one is rough, why? (hint, it has something to do with question 4: _____

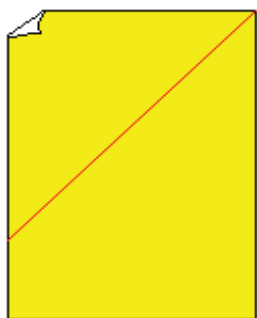


Diagram A
Fold corner up till it meets the other side.

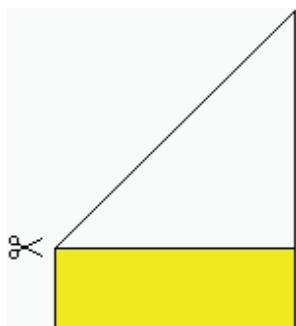


Diagram B
Cut off the area at the bottom to make it square.

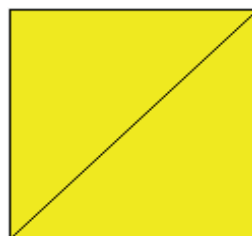


Diagram C

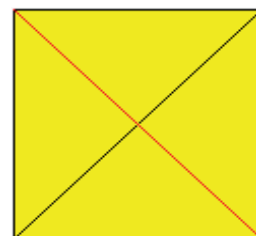


Diagram D
Fold other corner up till it meets the other side.

Compare your paper to the rest of the paper at the table.

Continue folding the paper like the following diagrams.

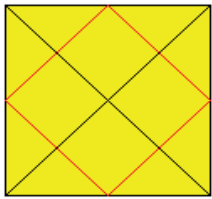


Diagram E
Fold up all four corners
so that the points meet
in the middle.

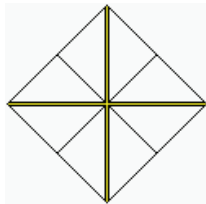


Diagram F
It should now look
like this.

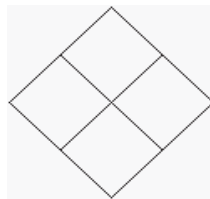


Diagram G
Flip it over.

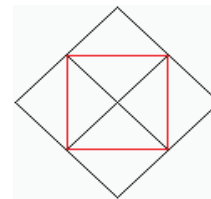


Diagram H
Fold up all four corners
so that the points meet
in the middle.

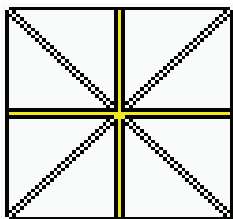


Diagram I
It should now look
like this.

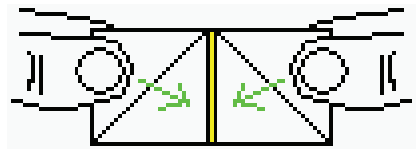


Diagram J
Fold the square a last time. Hold the
paper and push the upper corners in di-
rection of the arrows.

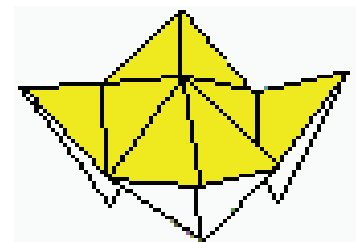


Diagram K
Work your fingers into the four corners.

This is called the fortune teller, it is a paper kid's game.

After your fingers are in the folds you are suppose to write numbers on the different tabs and then open up those tabs to read a different answer.

Write on it your numbers and answers, practice folding and unfolding it about 2-3 times.

11. After folding and opening it up several times, how does your paper look? What paper property is the ability of a sheet of paper to be folded and unfolded repeatedly without tearing? _____

Compare your paper to the rest of the paper at the table.

12. Are some of the sheets holding up better than others? _____

CH. 18 PAPER

Assignment Sheet 4 - Paper Cutting

Student Name _____ Date _____

BASIC SKILLS



TECHNOLOGY



READING



CRITICAL THINKING

OBJECTIVE

Evaluation Criteria

Rating

- Demonstrated correct safety requirements for using binding/finishing equipment _____
- Correctly figured out layout of cuts of instructor specified piece _____
- Correctly numbered cut layout of instructor specified piece _____
- Correctly cut instructor specified piece _____

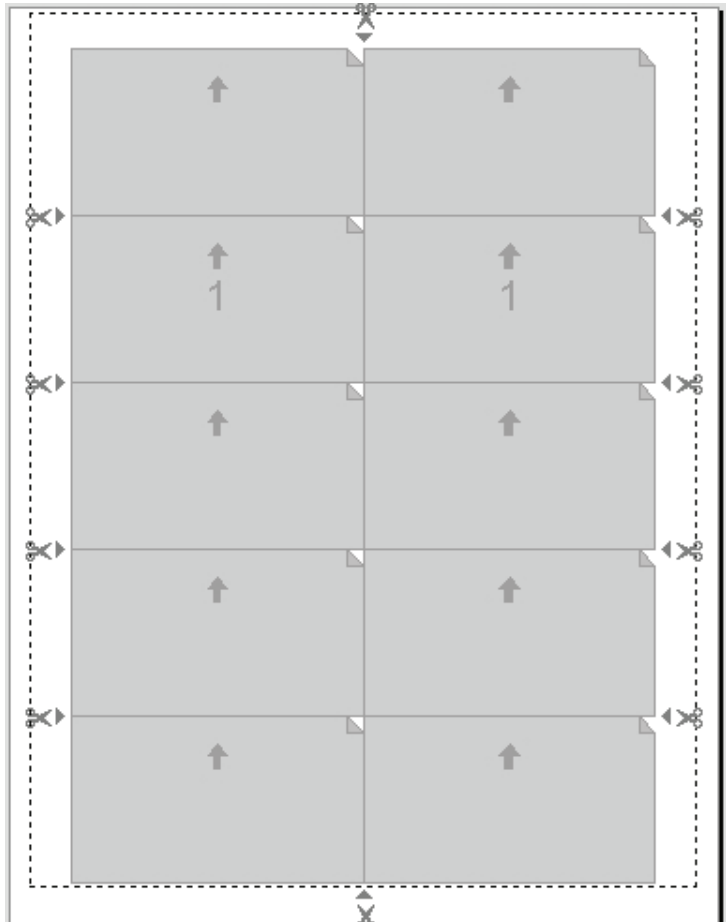
DIRECTIONS

Figure out the correct cutting layout configuration and number of cuts for the instructor business cards. Each business card should be 3.5"x2".

Figure out the measurements for each cut.

Figure out what cut should be first, second, third, etc.,.

Then cut the piece and turn into the instructor with this sheet.





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CHAPTER 18 - PRETEST

1. Log onto a computer and go to the following website:

- <http://reviewgamezone.com/index.php>

2. On the right side it has a box that has 'Games by ID#' type in 6151.

3. To get started, select a game from the list below and test your knowledge on 'Paper'

4. If you did not do well, you might want to complete the study guide on the other side of this paper.

Name _____

CHAPTER 18 - STUDY GUIDE

Directions: Using the book, read Chapter 18 and answer the questions below.

Know your vocabulary words

What are the raw materials used to make most paper? _____

What country is credited with the discovery of papermaking? _____

What are the various types of paper properties? know the definition for each.

Basis Weight _____

Finish _____

Fold Strength _____

Grain Direction, and why its important _____

Opacity _____

Tear Strength _____

Watermark _____

Know the different specialty substrates.

Carbonless _____

Pressure Sensitive _____

Gummed Label _____

Plastic Based _____

Metal _____

Know what paper characteristics would be good for digital printing.

Know why paper made from pulp is sustainable and recyclable.
