

I. PRELIMINARY INFORMATION:

- A. CLASS:**.....Graphic Arts
- B. TITLE OF UNIT:**.....Vinyl Application
- C. TITLE OF LESSON:**Understanding Vinyl and it's Application to Substrates
- D. COMPETENCIES ADDRESSED:**.....17. 1-8 Perform vinyl applications consistent with industry and safety standards.
- E. DATE & TIME:**1/8/08 – AM PM Classes
- F. WEEK OF INSTRUCTION:**.....1/7/08 – 1/18/08
- G. INSTRUCTOR:**.....R. Gossett
- H. ADDITIONAL INFORMATION**.....Cognitive Lesson

II. OBJECTIVES (*obj. ► content ► assessment = Internal Alignment*):*Psychomotor:*

Students will view instructional video about vinyl, it's characteristics and it's application. Students will listen to lecture by instructor, ask questions and answer questions about vinyl, it's characteristics and it's application to substrates. Students will take notes during lecture. Students will fill out study guide about vinyl (attachment A) In future labs, students will be able to follow steps to apply vinyl properly.

Cognitive:

Student will know:

- The three types of vinyl
- Characteristics of substrates
- Cleaning, Premask, Positioning and Application tools
- 3 Steps of preparation and application of vinyl for signs – the 3 "P"s – Prepare substrate, Premask, Positioning of graphic on Substrate
- Hinging methods of vinyl application
- Methods of Repairing vinyl on substrate

Affective:

Students will understand why different types of vinyl are used. Students will understand why different substrates are used. Students will appreciate all tools and steps involved in vinyl application.

III. TEACHING METHODS AND TECHNIQUES:

Illustrated Lecture

Question Answer

Discussion

Other:

IV. RESOURCES REQUIRED:

DVD

Computer/Computer Projector

Handouts

Other: Tools used in vinyl application - tweezers, application tape, bubble popper tool, xacto knife, squeegee, teflon sleeve, ruler, stabilo perncil. Subtrate samples such as Core-plastic, PVC board, glass, canvas.

TEACHER OUTLINE - Vinyl Signmaking outline

STUDENT STUDY GUIDE - Vinyl Signmaking Studyguide

V. INTRODUCTION:

Begin the lesson by giving out the Vinyl Study Guides. Instruct students to follow along with The instructional video and get as much information as possible for the study guides. Then after each segment of the video instructor will go over material discussed in that section. After giving out Vinyl Study Guide, show students example of a sign made using vinyl. Ask students "What kind of things have you seen made with vinyl?" "How many of you have a graphic on your car window?" "Wouldn't it be cool to learn how to create those graphics and apply them to signs, cars, windows and many other

things?" "Today we are going to learn about what vinyl is, what we can apply it to, and how it is applied!" "After this lesson, you will take a quiz over the material. Then after you have passed the quiz, you will have the opportunity to do a lab where you get to create graphics, cut vinyl, and apply it to many different substrates. Don't know what substrates are? You will after this lesson!"

VI. CONTENT (obj. ► content ► assessment = Internal Alignment):

Teacher will familiarize students with objectives, which are:
 become familiar with types of vinyl
 learn substrates
 learn tools for application
 learn steps of preparation and application of vinyl for signs

Students will view section 1 of Vinyl video called "Vinyl"

Teacher will review using notes, powerpoint and or using outline section called TYPES OF VINYL
 3 types of Vinyl Film
 1)Cast – Durable, conformable
 1.Conformable – mold over seems & rivets.
 2.Less shrinkage.
 3. No memory – conforms to shape.
 4.More Expensive but available in many colors.
 5.Endurance. Good for outdoors
 6.Called CAST because it is made from pouring liquid on a smooth surface

2)Calendared – Indoor or short term outdoor.
 1.Formed with pressure rollers.
 2.Has memory and will shrink. Memory means it will go back to its original shape from before it was formed by pressure rollers.
 3.Will shrink, crack and peel with heat and cold
 4.Cheaper, available in less colors

3)Specialty
 1.Reflective

2.Prism
 3.May not be outdoor durable
 4.Hallographic – outdoor for 5 years
 5.SIGNGOLD- 22 karat real gold – works for 14 years. -EXPENSIVE
 Teacher will pass around examples of types of vinyl.
 Students will fill in study guide as they go.
 Students will view section 2 of Vinyl video called “substrates”
 Teacher will review using notes and powerpoint or notes on board, using outline section called SUBSTRATES
 Substrates - Anything you stick letters to is a SUBSTRATE.
 glass, metal, PVC, board, canvas
 1. prefab substrates - “blanks”
 2. Sanblasted foam core – this can be oil painted.
 3. corrugated plastic - “core-plastic”
 4. Banners
 - most popular substrates.
 - 40% of revenue come from banners. suited for outdoor use.
 5. portable stands.
 Students will pass around examples of types of substrates.
 students will fill in study guide
 Students will view section 3 of Vinyl video called “tools”
 Teacher will review using notes and powerpoint or notes on board, using outline section called “TOOLS”
 Tools
 CLEANING TOOLS
 70% Isopropyl alcohol
 Lint Free Cloths
 Will cleaner leave residue? - make sure you have correct cleaner for substrate!!
 Adhesive failure – letters fall off – doesn't build repeat customers.

 PREMASK TOOLS
 app tape
 tape dispenser
 squeegee
 scissors
 trim knife

POSITIONING TOOLS

center point ruler
cutting mats
Water soluble pencils

APPLICATION TOOLS

squeegee
squeegee sleeves
rubber brayer – doesn't
replace squeegee
application fluid

Teacher will pass around samples of vinyl tools.

Students will view section 4 of Vinyl video called "Techniques"

After each section of techniques, teacher will review using powerpoint or notes on board.

PREPARING GRAPHIC – 3 STEPS

1. Prepare surface
2. Premask
3. Mark for positioning

WEEDING - Removing excess vinyl

PROBLEMS – due to cutter or blade setting error – not vinyl!

If problems weeding - check settings and adjustments

set cutter speed slower

make sure blade depth is correct for thickness of vinyl

Liftoff – tearing during weeding.

Where to go for help? Tutorial on sign warehouse website

Techniques for weeding:

- Weed letters from right to left.

- Work in sections. Use software to make border or use xacto to trim

- Remove by pulling at 45 angle. Pull up and away.

- Not all serif or novelty fonts are good for vinyl

PREPARATION of SUBSTRATES

Substrates – glass, banners, metal, auto

Surface conditions and cleanliness are important

Cleaners should not leave oil.

Isopropyl Alcohol is usually

fine.

Vehicles may need cleaner that removes oil, dirt and residue

Sign blanks may only need

Alcohol

Temp – optimum 60-80 f

If too hot, spray with ap fluid or water.

If too hot, graphics will fall off.

THIS DOES NOT MAKE REPEAT BUSINESS!!

Heat gun can be used to warm surface if too cold.

Stickiness of vinyl is called "tack"

PREMASK – applying application tape to graphic

Application tape – like masking tape. Stabilizes vinyl during removal of backing. Low tack, can be peeled off of substrates

To begin - need large flat surface, tape dispenser, large squeegee.

- 1.place graphic on table
- 2.pull app tape taught, hold above graphic
- 3.if not straight, snap loose and straighten
- 4.use wide squeegee to bond tape to vinyl.
- 5.work in strokes from center outward.
- 6.use 45 degree angle strokes with squeegee.

POSITIONING GRAPHICS - Premeasure and mark

Use REGISTRATION MARKS – marks to show center of substrate and graphic.

- 1.measure substrate from edge to edge.
- 2.Place substrate on work table
- 3.Use stabilo pencil – water soluble pencil that will not hurt substrate. Make center marks on substrate in area visible beyond graphic
- 4.Mark center of graphic on premask. - make sure to measure GRAPHIC, not PREMASK

5.Match cross hairs of substrates and graphic

HINGING

Center hinge – most commonly used method

- 1.position graphic on substrate
- 2.tack graphic with masking tape on

corners

3. Put vertical tape down center to make "hinge"
4. Start with right side. (if right handed)
5. Lift end toward center and remove liner.
6. Cut backing at center
7. Starting from center, squeegee vinyl to substrates
8. Lift left side and cut
9. squeegee vinyl again
10. Make sure to hold squeegee at 45 degree angle
11. remove app tape – start at top corner. pull firmly toward self keeping tape at 180 degree (180 degree angle keeps from getting bubbles)

Horizontal Hinge – used for long graphics, large graphics that need to be applied in sections

1. tack corners with tape
2. masking tape lengthwise across top of graphic
3. remove tape from corners.
4. cut into sections
5. start at right, flip up section and remove liner
6. Squeegee each section with downward strokes. Resqueegee whole thing
7. remove ap tape at 180 degree angle.
8. re-squeegee with teflon sleeve to protect vinyl from marking or marring.

REPAIRS – check for flaws

bubbles – pierce hole at edge and work air out with squeegee, or bubble popper tool

tunnel – runs full length of graphic

Flute – tunnel with hole at one end.

to fix tunnels and flutes – slit vinyl and overlap ends. Re-squeegee entire area.

Make sure to use squeegee protector so vinyl is not marred or marked. Teacher will show samples of vinyl graphic during each stage of techniques

NOTE – section called "Application"

and "Making a Banner" will be skipped
After Video, teacher will ask for
questions, and review

VII. SUMMARY:

There are 3 types of Vinyl - Cast, which is conformable, has endurance and is for outdoor use. Calendared, which has memory so it will shrink, crack and peel outdoors. It is cheaper and for short term use. Specialty vinyl comes in many types such as reflective, prism and halographic. Check with manufacturer for details on uses.

Substrates are anything you can stick vinyl to. Core-plastic is popular substrate. Banners are most popular, with 20% of signmaking revenue coming from vinyl banners.

Tools - Cleaning tools, Premask tools, Positioning tools and Application tools

3 STEPS to preparing graphics, the 3 P's
Prepare surface, Premask and Position your graphic. You must do all the 3 P's for success in vinyl application!

Weeding - removing unwanted vinyl from graphic. Weeding problems are due to cutter, not vinyl. Liftoff is tearing for vinyl during weeding. Weed letters from right to left. Work in sections. Remove at a 45 degree angle.

Preparation of Substrates - use cleaners that will not break down substrates or leave residue. Optimum temperature is 60-80 degrees. Stickiness is called TACK. Vinyl won't stick if substrate is not cleaned properly. THIS DOES NOT CREATE REPEAT BUSINESS.

Premask - applying application tape to graphic. Use a wide squeegee. Apply at 45 degree angle. Application tape is low tack.

Positioning - Measure graphic from edge of design to other edge of design using stabilo pencil. Measure substrate horizontally and vertically. Only mark substrate on areas that will not be covered by graphic.

Hinging - center hinge is most common. This is where you put the tape from top to bottom in center of graphic. After putting tape down center, remove backing and cut off. Then squeegee down application tape starting close to masking tape and squeegee at 45 degree angle pushing out towards edges. Continue with other side. Then remove application tape by pulling downward at 180 degree angle.

Horizontal Hinge - used for large designs such as banners. Masking tape is applied lengthwise to graphic at top. Cut graphic into sections. Remove backing. Squeegee application tape down. Remove application tape. Continue with next section. Finally squeegee design with teflon sleeve covered squeegee.

Repairs - Check your finished sign for flaws. If there are bubbles, remove with bubble popper tool. If there are tunnels and flutes, cut with Xacto knife, smooth one side over top of other side and squeegee with teflon covered squeegee.

VIII. ASSESSMENT *(obj. ► content ► assessment = Internal Alignment)*

Psychomotor:

Students will complete vinyl lab in future lesson which will assess ability to recognize types of

vinyl, types of substrates, ability to prepare, premask and position vinyl.

Cognitive:

Completed Vocabulary page. (see attached document "Vinyl Vocabulary")
 Completed Study Guide (see attached document "Vinyl Study Guide")
 Vinyl Quiz, must get at least 80% to begin vinyl lab.

Affective:

During lecture, Instructor will assess Affective learning through question and answers about vinyl. This will show that students understand why different types of vinyl are used, different substrates are used and specific steps are taken for vinyl application. Students will recite steps to vinyl application, showing appreciation of these steps in order to be successful in process.

IX. ASSIGNMENTS *(reinforce major lesson components):*

Homework: Study answers to study guide.

Homework: Complete Vinyl Vocabulary

Homework: Bring in a substrate from home to be used in future vinyl application lab

X. RELEVANCE TO FUTURE LESSONS:

Vinyl lab - Students will create a single color design to be applied to a substrate brought from home.

Vinyl lab - Students will apply a pre-cut graphic to pre-cut foam core board. All students will apply the same graphic to the same size substrate, in order to assess student ability to follow steps for successful vinyl

application.

Vinyl lab - students will create 11x17" design to be applied to Coreplastic

Vinyl lab - Students will create a 2 color vinyl design to be applied to fabric using heat press.

XI. LESSON/COURSE EVALUATION:

This lesson worked very well. In the future I will have more examples of vinyl signs and t-shirts to show the students. This lesson was taught in one day. In the future it should be divided up into two days. Then the third day should be the quiz and first lab. Fourth and fifth day should be other labs.