

# Designing Tutorials that Teach

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# Overview

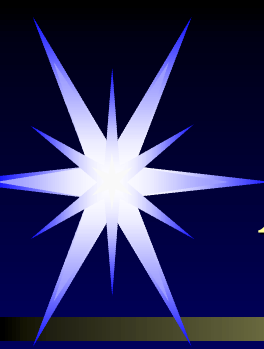
 Background from Theory

 Analyzing the Project

 Structuring the Lessons

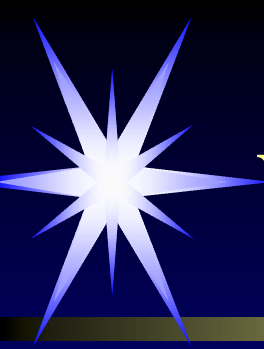
 Writing the Tutorial

 Questions?



# About “Tutorials”

- “Getting Started” or “Quick Start”
- Print or online
- Teach concepts or tasks
- Reading to learn to do
- Different from training materials



# Why Use Tutorials

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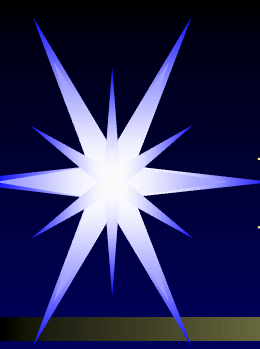
“I hear and I forget.  
I see and I remember.  
I do and I understand.”  
-- Chinese proverb



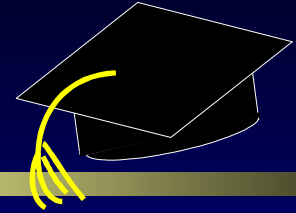
# A Little Learning Theory



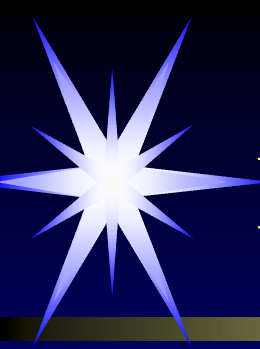
- Memory limitations
- Mental model development
- User development curves
- Learning styles
- Self-instruction approaches



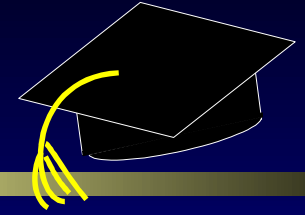
# Memory Limitations



- Sensory registers
- Short-term memory
- Long-term memory

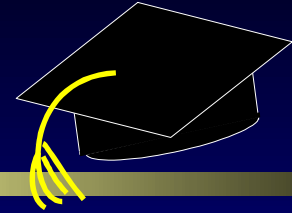


# Mental Model Development

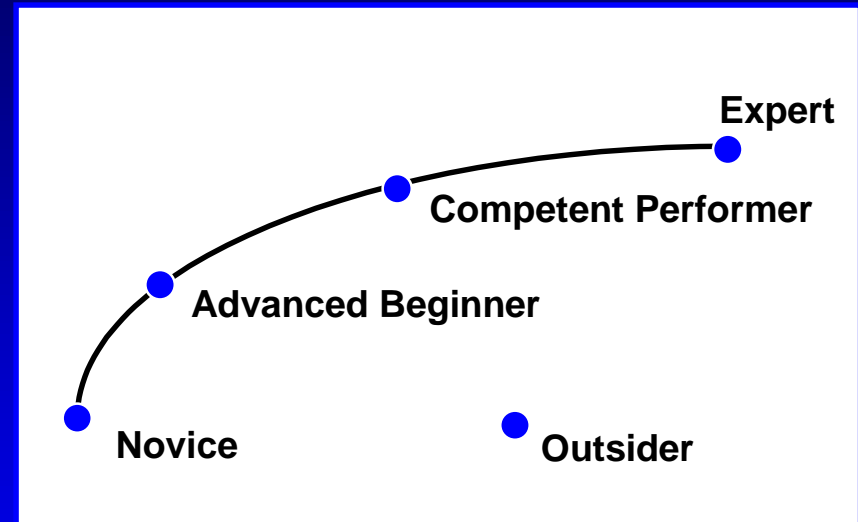


- Existing models
- Software model

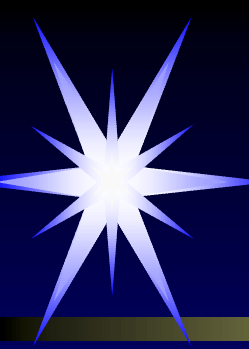
# User Development Curves



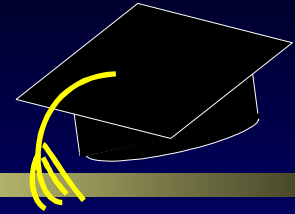
- Novice
- Advanced Beginner
- Competent Performer
- Expert
- Outsider







# Learning Styles



- Adult learners:
  - Goal-oriented, want to see how learning applies
  - Prefer control over learning process
  - Learn best by doing
  - Desire respect, think time is valuable
  - May be afraid to make mistakes
- Computer experience affects style
- Visual, auditory, kinesthetic



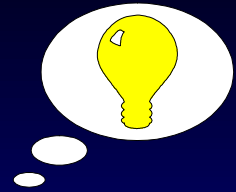
# Self-Instruction Approaches



- Programmed Instruction:  
expository-based, frequent assessment
- Learner-Controlled Instruction:  
inquiry-based, self-assessment
- Blend of two extremes

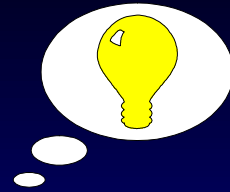


# Analyzing the Project



- Audience analysis
- Product analysis
- Task analysis
- Media analysis
- Application analysis

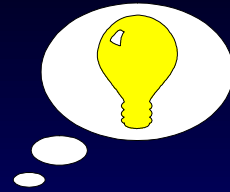
# Audience Analysis



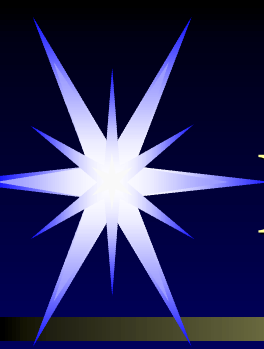
- How much hand-holding do they need?



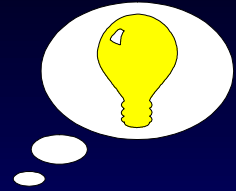
# Audience Analysis



- Strengths and weaknesses
  - Education
  - Interests
  - Goals and motivation
  - Tasks
  - Personality
  - Learning environment
  - Product use environment
  - Subject matter background
  - Established mental models
- Do you have more than one type of user?



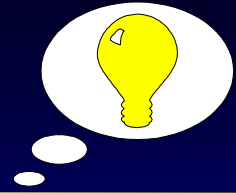
# Product Analysis



- Open-ended products
- Closed-set products



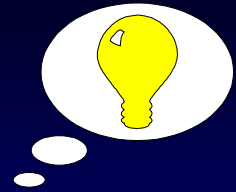
# Task Analysis



- Create list of tasks
  - Granularity and size of list depends on product
- Relate users goals to tasks
  - Motivation → Goals → Tasks → Steps
- Are tasks sequential?
- Do different users have different task sets?



# Media Analysis

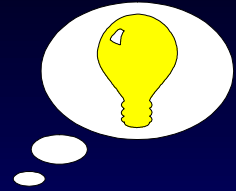


- Paper
- Online static
- Online responsive
- Embedded in product





# Application Analysis



- Use goal audience can relate to
- Simplify where necessary
- Allow some flexibility if possible



# Structuring the Lessons



1

2

3

- Set learning objectives
- Select tutorial tasks
- Task/lesson matrix
- Lesson sequence
- Timing



# Set Learning Objectives

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- What should they be able to do?
- Concrete
- Measurable



# Select Tutorial Tasks



1

2

3

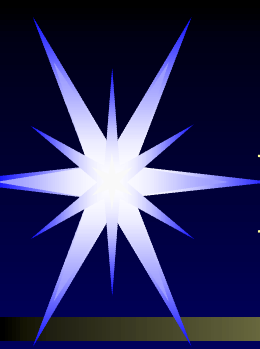
- Important tasks
- Representative tasks
- Omit power-user tasks
- Tied to learning objectives

# Task/Lesson Matrix



- Balance lesson difficulty
- Create layered learning

	Ch. 1	Ch. 2	Ch. 3
<b>Basic Environment</b>			
Open environment			
Create new project	X		
Add file to project	X		
Load program on target	X		
Run program	X		
Stop program	X		
Save and load workspace settings			X
Set environment preferences			X
<b>Integrated Editor</b>			
Edit program code	X		
Fix syntax errors		X	
Get context-sensitive help on program	X		
Mark block and match { } toolbar buttons			X
Search multiple files		X	
<b>Build Facilities</b>			
View project files	X		
Build program	X		
Set compilation options		X	
<b>Debugging Features</b>			
Create breakpoints		X	
Step into, step over, step out, run to cursor		X	
Remove breakpoints		X	
Animation at breakpoint			X
Create watched variables			X
Modify watched variables			X
View and edit memory or registers		X	
View call stack			X
Scripting			X
Reset target (necessary for troubleshooting)	X		



# Lesson Sequence



- Sort by degree of difficulty
- Sort by frequency of use
- Sort by sequence of use
- Sort from concrete to conceptual



# Timing



- How much time for entire tutorial?
- How much time for a single lesson?
- Shorter options:
  - Guided tour
  - Quick start
  - “10 Easy Steps”

# 10 Easy Steps

## Chapter 2 Create a Web Page in 10 Easy Steps

What you'll find  
in this chapter:

Step 1: A little background	22
Step 2: Start AOLpress	23
Step 3: Create a Web page	24
Step 4: Type and format text	24
Step 5: Create a list	25
Step 6: Create links to other pages	25
Step 7: Create an email link	27
Step 8: Add colors and images:	28
Step 9: Saving to your local disk	30
Step 10: Publishing to PrimeHost or AOL	31
Learning More...	32

The steps in this chapter show you how to quickly create a Web page for yourself. Your page will have text, links, and a way for people to send you email. And, you'll be surprised how quickly you can create all of this. This chapter also shows you how to publish your page to the PrimeHost hosting service (if you have an account).



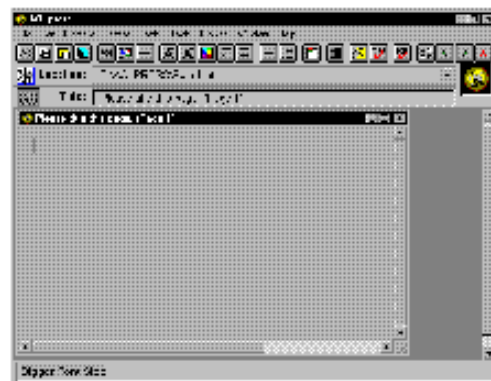
## Create a Web Page in 10 Easy Steps

### Step 3: Create a Web page

## Step 3: Create a Web page

AOLpress also includes an online tutorial that helps you learn to create and edit Web pages. To start the online tutorial, choose **Help**→**Tutorial** in AOLpress.

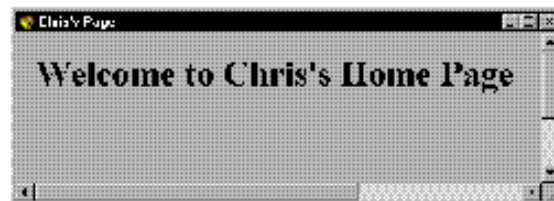
- 1 Choose the **File**→**New**→**New Page** menu item. You'll see a blank window that says "Please title this page." This is just like a blank document in a word processor.



- 2 Let's start by giving the page a title. In the **Title** field above the blank area, type "\_\_\_\_\_'s Page" and fill in your name. For example, type "Chris's Page". Press the Return key and you will see this title at the top of the window.

## Step 4: Type and format text

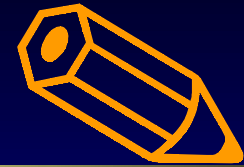
- 1 At the top of the page, type "Welcome to \_\_\_\_\_'s Home Page!" Fill in your name again. For example, type "Welcome to Chris's Home Page!" Then, click on the welcome message you typed to make sure the cursor is in this line.
- 2 Choose the **Format**→**Heading**→**Hdg 1** menu item. This makes your welcome message big and bold. Your welcome message will look like this:







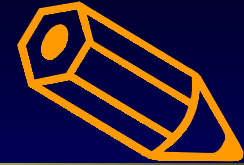
# Writing the Tutorial



- Advance and summary organizers
- Consistent structure
- Escape route
- Concept and procedure mix
- Progressive disclosure
- Techniques from minimalism
- Assessment
- Graphical interest
- Appropriate writing style



# Advance and Summary Organizers



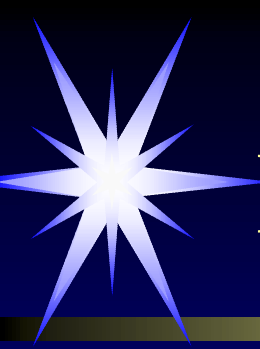
- Explain the goal
- Tell ‘em what your going to tell ‘em.  
Tell ‘em.  
Tell ‘em what you told ‘em.
- Don’t call it an “introduction”



# Consistent Structure



- Introduction (don't call it that)
- (Tutorial content)
- Things to Try / Learning More
- Review
- What's Next?



# Escape Route



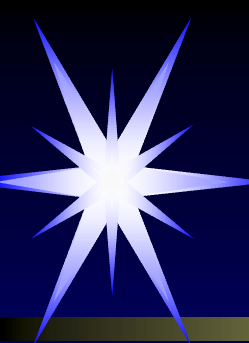
- Leave room to explore
- Provide way to recover
- Sometimes OK to make them see errors



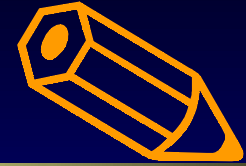
# Concept and Procedure Mix



- Reasons to mix content types
- Reasons to separate content types



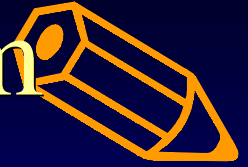
# “Regressive” Disclosure



- Wean them from details
- Don't overwhelm with options



# Techniques from Minimalism

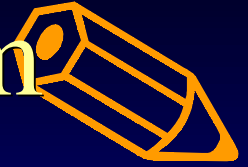


One day a student asked the master, “What is the most difficult part of painting?”

The master answered, “The part of the paper where nothing is painted is the most difficult.”



# Techniques from Minimalism



 Elaboration

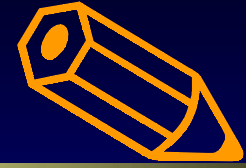
vs.

 Minimalism

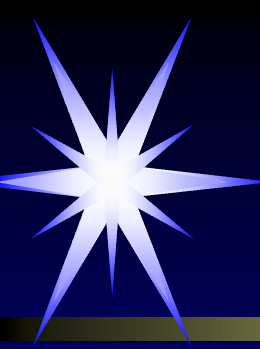




# Assessment



- Expository vs. inquiry-based
- Provide for self-assessment
- Immediate feedback
- Media-dependent



# Graphical Interest



- Design for navigation
- Consider use of screen captures
- Include conceptual graphics



# Appropriate Writing Style

- Consider audience when setting tone
- Tutorial allows “closer” relationship
- Keep procedure length reasonable



# Testing the Tutorial

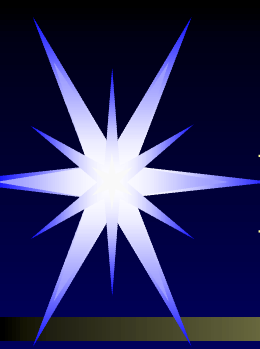
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- Usability testing
- Correctness testing
- Iterative process



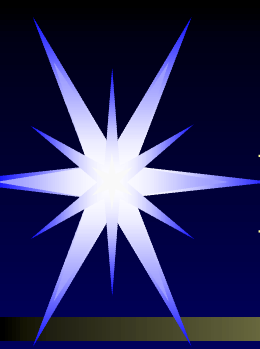
Questions?





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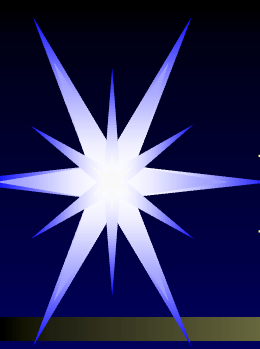
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