TITLE: Principles of Sustainable Landscapes **INSTRUCTOR: Jessi Bloom, NW Bloom Ecological Landscaping** **SESSION LENGTH: 45 MIN**

MIN	COMPONENT	LEARNING OBJECTIVES	TOPICS TO COVER	BMPs	STUDY MATERIALS
40	INTRO/LECTURE 1	Create enthusiasm and support for learning about and practicing sustainable landscaping Increase understanding of BMPs Introducing ways that sustainable landscaping can be incorporated into your program	• Overview/summary of BMPs • Sustainability terms • How design, construction and maintenance are holistically integrated in the sustainable landscape • Guiding Principles of sustainable, ecological management • 3-pronged stool: Environment, Social Equity, Economics • Rationale for and benefits of sustainable landscapes • Ecosystem services • Functional plants and landscapes • Closed loop systems • Utilizing stormwater management practices • Utilize sustainable materials • Conservation of energy and water use • Enhancing wildlife habitat • Examples of sustainable landscapes	ALL	Program Guidelines and BMPs Sustainable Landscape Management Chs. 1-2, 4-8 Case for Sustainable Landscapes Designing the Sustainable Site Soils and Soil testing www.buildingsoil.org RainWise Sustainable Lawn Care Intro to IPM
5	WRAP UP				

MIN	COMPONENT	DESCRIPTION	CLASS MATERIALS	SAVI
40	LECTURE 1	Summary and benefits of SLP program, Guiding Principles, BMPs, examples of sustainable landscapes	none	Auditory/Visual
5	WRAP UP	Synthesis of the program and why it's important	none	Auditory/Intellectual

TITLE: Designing the Sustainable Site **INSTRUCTOR: Jessi Bloom, NW Bloom Eco-Logical Landscaping** **SESSION LENGTH: 1.25 HRS**

MIN	COMPONENT	LEARNING OBJECTIVES	TOPICS TO COVER	BMPs	STUDY MATERIALS
25	INTRO/LECTURE 1	Increase use of SLP BMPs in designing landscapes Articulate the steps in site assessment	• Design principles in the sustainable landscape • Landscape management plans • Site assessment • Site water management: Hydrology, hydrozones and grouping plants by water use • Conserving and enhancing habitat • Wetlands and critical areas design • Onsite recycling	ALL	Program BMPs and Guiding Principles Sustainable Landscape Management, Chs. 1, 3-6 Designing the Sustainable Site, Chs. 1-2, 7-8 RainWise Sustainable Lawn Care Intro to IPM
25	LECTURE 2	Choosing sustainable plants using a systematic process based on site ecology, suitability, resiliency Articulate the primary purpose/function of plants in a particular landscape	• Plants in landscape design: function, purpose • Assessing site character for plant cultural needs • Assessing /inspecting nursery material • Plant site suitability • Use of native plants • Plants and wildlife habitat • Plants with human health issues • Disease and pest resistant plants • Plants that provide maximum soil coverage	Conserve and Protect Soils Conserve Water Sustain Healthy Plants	Sustainable Landscape Management, Chs. 3-6, 8 Designing the Sustainable Site : Chs. 2, 4, 5-8 Sustainable Lawn Care Intro to IPM WDFW Landscaping for Wildlife
20	ACTIVITY 1	Assessing the landscape plants			
5	WRAP UP	What are the long term benefits of a sustainable site design?			

MIN	COMPONENT	DESCRIPTION	CLASS MATERIALS	SAVI
50	LECTURE 1, 2			Auditory/Visual
20	ACTIVITY 1	Outdoor activity OR (Indoor) use a site plan. Groups use a worksheet to assess plants in a local landscape.	Site assessment worksheet	Somatic/ Auditory/ Visual/ Intellectual
5	WRAP UP	Group Discussion of a the benefits of sustainable site design	Groups shout out OR record 3 benefits and share with class	Auditory/ Intellectual

TITLE: Start with the Soil: Soil Science for Sustainable Landscapes **INSTRUCTOR: David McDonald, Seattle Public Utilities** **SESSION LENGTH: 2.5 HRS**

MIN	COMPONENT	LEARNING OBJECTIVES	TOPICS TO COVER	BMPs	STUDY MATERIALS
50	INTRO/LECTURE 1	Increase understanding of soil science Articulate and assess soil physical properties, biology and chemistry Understand and implementing sustainable soil management in design, construction and maintenance	• Soils BMP goals and requirements • Physical properties of soils: density, structure, texture, moisture content • Soil Chemistry: pH, nutrients, organic matter, Cation exchange capacity (CEC) • Soil biology: organisms and food web contributions • Soil formation • Soil assessment and drainage • Elements of a Construction Soils Management Plan • Compost-amended soils/ onsite recycling • Soils Management: erosion control, inputs, restoring soils • Stormwater infiltration and flow control	Protect & Conserve Soils Conserve Water Protect Water & Air Quality Sustain Healthy Plants	Sustainable Landscape Management Chs. 3, 5-8 Case for Sustainable landscapes Soils and Soil testing www.buildingsoil.org RainWise
10	ACTIVITY 1	Ribbon test: Demonstrate knowledge of soil structure, texture, properties/how to determine in the field	• Ribbon test demonstration • Practice this with several soil samples • Discuss/Identify properties/classification	Protect & Conserve Soils	Soils and Soil testing
45	LECTURE 2	Learn to manage construction soils Learn ways to improve poor soils How to use plants as indicators of soil type and soil health	• Managing soils during construction • Managing soils in existing landscapes • Closed loop management benefits to soils • Introduction to Soil Management Plans • GSI and other engineered soils • Implementing site grading specifications	Protect & Conserve Soils Conserve Water Protect Water & Air Quality Sustain Healthy Plants	Soils and Soil testing www.buildingsoil.org
30	ACTIVITY 2	Learn how to read, analyze, and utilize soil test results	• Steps to taking a good soil test (review) • How to read and analyze test results • How a soil test can inform a landscaper in managing soils and plants	Protect & Conserve Soils Conserve Water Protect Water & Air Quality Sustain Healthy Plants	Soils and Soil testing
5	WRAP UP	What have we learned? Pair and share	3 questions/verbal participant answers		

TITLE: Start with the Soil: Soil Science for Sustainable Landscapes (p. 2) INSTRUCTOR: David McDonald, Seattle Public Utilities SESSION LENGTH: 2.5 HRS

MIN	COMPONENT	DESCRIPTION	CLASS MATERIALS	SAVI
95	LECTURE 1, 2	Soil science and management		Auditory/Visual
10	ACTIVITY 1	Ribbon test demonstration Pairs do the test, discuss/identify soil characteristics/where would this soil be found	A variety of common PNW soils Soils assessment worksheet	Auditory/Somatic
30	ACTIVITY 2	Soil test results and analysis Go over with instructor Questions sheet to fill in?	Soil test results and analysis worksheet	Somatic/Intellectual
5	WRAP UP	What have we learned? 3 questions/verbal participant answers	none	Auditory/Intellectual

TITLE: Green Stormwater Infrastructure in the Sustainable Site **INSTRUCTOR: David McDonald, Seattle Public Utilities** **SESSION LENGTH: 1.0 HRS**

MIN	COMPONENT	LEARNING OBJECTIVES	TOPICS TO COVER	BMPs	STUDY MATERIALS
20	INTRO/LECTURE 1	Increase understanding of Green Stormwater Infrastructure and Low Impact Development Describe various GSI stormwater management options and their functions Describe how rain gardens and bioretention cells work to slow stormwater flow and manage pollutants	• Stormwater Management and local regulations • Design and function of GSI • Bioretention facilities and rain gardens • Vegetated roofs and living walls • Specifications for protecting trees • Ongoing management and monitoring • Ability to determine methods for assessing infiltration	Protect Water and Air Quality Use Sustainable Methods and Materials	Sustainable Landscape Management, Chs. 3-6 Designing the Sustainable Site Ch. 5 RainWise
10	ACTIVITY 1	Assessing a landscape for potential GSI	Group review how to use GSI in a landscape		
20	LECTURE 2	Increase understanding of Green Stormwater Infrastructure and Low Impact Development Describe various GSI stormwater management options and their function	• Permeable paving options • Stormwater and graywater harvesting and reuse • Controlling site runoff and erosion • Ongoing management and monitoring	Protect Water and Air Quality Use Sustainable Methods and Materials	Sustainable Landscape Management, Chs. 3-6 Designing the Sustainable Site Ch. 5 RainWise
15	ACTIVITY 2	Creating a maintenance plan for GSI	• Compliance with local Stormwater Management regulations • Management and monitoring		
	WRAP UP		Questions and resources		

MIN	COMPONENT	DESCRIPTION	CLASS MATERIALS	SAVI
40	LECTURE 1, 2	Stormwater management GSI facilities design, use, and management Sustainability benefits		Auditory/Visual
10	ACTIVITY 1	Outdoor activity OR use a site plan. Assess a landscape for possible use of GSI	Assessment/inventory worksheet	Somatic/Auditory/Intellectual
15	ACTIVITY 2	Using your assessment for Activity 1, create a management plan for one of the GSI you have proposed	Management checklist	Auditory/Visual/Intellectual
	WRAP UP	Questions and resources		Auditory/Intellectual

TITLE: Alternative Fuels **INSTRUCTOR: Linda & Jeff Carroll, Jefferson Landscaping** **SESSION LENGTH: 45 MIN**

MIN	COMPONENT	LEARNING OBJECTIVES	TOPICS TO COVER	BMPs	STUDY MATERIALS
20-25	LECTURE 1	Share experiences of alternative fuel (AF)powered landscape equipment being used in residential and a campus landscape setting Increase awareness of available resources for alternative fuels Increase understanding of the benefits, challenges, purchasing and maintenance costs of alternative fueled equipment Understand the life cycle assessment of alternative-fueled equipment for landscape use	• Managing energy use in a sustainable landscape • Maintaining equipment and vehicles in optimal working condition for maximum fuel efficiency • Biodiesel, propane, batteries • Newer fuel-efficient vehicles/equipment • Gas/electric hybrid vehicles • EPA regulations (2011) • Government incentives • Examples of alternative fuel powered landscape equipment being used in residential and a campus landscape setting • Benefits of low-emission equipment • Comparison of benefits and costs • Challenges of AF use • Life cycle assessment of alternative fueled equipment • Resources for AF equipment and fuels	Protect Water and Air Quality Conserve Energy Sustainable Materials and Methods	1. Program Guidelines and BMPs 2. Sustainable Landscape Management Ch. 6 3. The Case for Sustainable Landscapes: Ch. 4 4. Clean Cities Guide to Alternative Fuel Commercial Lawn Equipment
15-20	ACTIVITY 1	Peer learning	Participants share their questions about and experience with alternative fuel use	As applicable to site	As applicable to site
5	WRAP UP	Final questions and resources (from Clean Cities or local sources)			

MIN	COMPONENT	DESCRIPTION	CLASS MATERIALS	SAVI
20	LECTURE 1	Case studies of residential and campus landscapes using alternative fuels	none	Auditory/Visual
20	ACTIVITY 1	Group questions/discussion and peer sharing their experiences with alternative fuels	none	Auditory/Visual/Intellectual
5	WRAP UP	Questions/resources	One page with resources	Auditory/Intellectual

TITLE: Planting and Establishment Techniques and Best Practices **INSTRUCTOR: Sue Nicol, Horticulturist and Certified Arborist** **SESSION LENGTH: 1 HR**

MIN	COMPONENT	LEARNING OBJECTIVES	TOPICS TO COVER	BMPs	STUDY MATERIALS
20	INTRO/LECTURE 1	Understand how to inspect plants before planting Articulate how to determine the size of a planting hole Explain why circling roots in a container plant is a problem Articulate how to install plants or plant groups in the landscape	• Plant inspection procedures • How to inspect and handle problem roots before planting • Planting and transplant techniques for various trees, shrubs, perennials • Plant groups/layering/communities	Protect and Conserve Soils Conserve Water Sustain Healthy Plants Use Sustainable Materials and Methods	Program Guidelines and BMPs Sustainable Landscape Management, Chs. 3, 8 Designing the Sustainable Site Ch. 5, 8 Washington State University Extension/ Master Gardener Natural Landscaping: Design, Build, Maintain
10	ACTIVITY 1	Demonstrate techniques for treating plants with roots exuding from a container, circling roots, other problematic situations	• Planting and transplant techniques for various trees, shrubs, perennials • Establishment factors after installation • Establishment periods for various plants		
15	LECTURE 2	Explain methods for transplanting deciduous and evergreen trees Determine what care is needed within a plant establishment period			
10	ACTIVITY 2	Articulate the factors to consider in an plant establishment plan			
5	WRAP UP		Questions and resources		

MIN	COMPONENT	DESCRIPTION	CLASS MATERIALS	SAVI
35	LECTURE 1, 2	Plant inspection Plant installation Plant establishment	None or WSU factsheets	Auditory/Visual
10	ACTIVITY 1	Plant installation problems and solutions	Assessment/inventory worksheet	Somatic/Auditory/Intellectual
10	ACTIVITY 2	Plant installation techniques and establishment	Worksheets	Somatic/Auditory/Intellectual
5	WRAP UP	Questions and resources	One pager with resources	Auditory/Intellectual

TITLE: Protecting Existing Plants, Habitat and Wildlife During Construction **INSTRUCTOR: Sue Nicol, Horticulturist & Certified Arborist** **SESSION LENGTH: 1 HR**

MIN	COMPONENT	LEARNING OBJECTIVES	TOPICS TO COVER	BMPs	STUDY MATERIALS
30	INTRO/LECTURE 1	Increase understanding of how to identify and protect wildlife and their habitat on a construction site How to protect plants before planting at a construction site Increase knowledge of invasive plants and pest animals Increase knowledge of common landscape trees' relative tolerances to construction damage Increase understanding of how to properly protect trees and meet tree Critical Root Zone (CRZ) protection standards on a construction site	• How to preserve existing wildlife • How to preserve existing landscape features that support wildlife • Preserving existing native plant communities and other natural areas from construction impacts • Identifying invasive plants and pest animals • Properly protect trees and specimen plants from construction impacts • How to transplant/salvage plants • Maintenance of salvaged plants and purchased plant before planting • CRZ protection calculation and protection: fencing, pruning, wood chip mulch	Protect and Conserve Soil Protect and Create Wildlife Habitat Sustain Healthy Plants Use Sustainable Methods and Materials	Program Guidelines and BMPs Sustainable Landscape Management Chs. 2, 8 Designing the Sustainable Site Ch. 7-8 PNW Regional Pruning Guide Best Irrigation Practices(tent) Washington Department of Fish and Wildlife Landscaping for Wildlife and Living with Wildlife
20	ACTIVITY 1	Outdoor activity or indoor quiz. Complete an accurate assessment and delineation of the CRZ	Proper calculation and delineation of a CRZ		
5	WRAP UP	Final questions at Activity site			

MIN	COMPONENT	DESCRIPTION	CLASS MATERIALS	SAVI
30	LECTURE 1	How to protect vegetation and wildlife habitat at a construction site	none	Auditory/Visual
20	ACTIVITY 1	Outdoor activity or quiz. Properly calculate and delineate a CRZ	CRZ Calculation worksheet	Somatic/Auditory/Visual/Intellectual
5	WRAP UP	Questions/resources	One pager with resources	Auditory/Intellectual

TITLE: Best Irrigation Practices **INSTRUCTOR: Mark Guthrie, Tacoma Water** **SESSION LENGTH: 1.5 HR**

MIN	COMPONENT	LEARNING OBJECTIVES	TOPICS TO COVER	BMPs	STUDY MATERIALS
60	LECTURE 1	How to audit and adjust irrigation system performance after installation Steps in irrigation system seasonal startup and shutdown How to identify and manage hydrozones How to manage irrigation to prevent runoff How to use and evaluate water conservation equipment features	• Efficient irrigation scheduling • Field assessments and auditing • Plant-water relationship • Smart controllers • Sensors • Irrigation monitoring and assessment • Irrigation Association • Saving Water Partnership and other resources • Hydrozones and site hydrology as it relates to irrigation audits • Startup and shutdown procedures • PNW climate and irrigation adjustments • Soil texture and water • Why plants need water • Water reuse for irrigation	Protect and Conserve Soil Conserve Water Protect Water and Air Quality Sustain Healthy Plants Use Sustainable Methods and Materials	Program Guidelines and BMPs Sustainable Landscape Management Chs. 3, 8, 9 Designing the Sustainable Site Ch. 6 Best Irrigation Practices Sustainable Lawn Care
25	ACTIVITY 1	Outdoor activity or indoor quiz. Walking site assessment for irrigation efficiency			
5	WRAP UP	Final questions at Activity site			

MIN	COMPONENT	DESCRIPTION	CLASS MATERIALS	SAVI
60	LECTURE 1	Overview of sustainable irrigation equipment and management	none	Auditory/Visual
25	ACTIVITY 1	Outdoor activity or quiz.	Steps or checklist	Somatic/Auditory/Visual/Intellectual
5	WRAP UP	Questions/resources	One pager for resources	Auditory/Intellectual

TITLE: Plant Health Care and Integrated Pest Management and Monitoring in the Sustainable Landscape **INSTRUCTORS: Ladd Smith, In Harmony Sustainable Landscapes, and Ray Willard PLA, WSDOT** **SESSION LENGTH: 1.5 HRS**

MIN	COMPONENT	LEARNING OBJECTIVES	TOPICS TO COVER	BMPs	STUDY MATERIALS
20	INTRO/ LECTURE 1: Plant Health Care	Describe how to use plant health care programs in landscapes you work in Develop holistic integrated vegetation and pest management decision-making strategies and establishing action thresholds Articulate management strategies for common pests or diseases of local concern Increase knowledge of regionally common invasive plants	• Integrated pest management in the sustainable landscape • Integrated pest management in state law RCW 17.15 • Plant health care and IPM strategies, including mulching, mulch-mowing, right plant right place, use of non-pesticide strategies, biological products and beneficials • Organic and biological pesticides characteristics/EPA definitions and regulations • Organic and biological pesticides and practices environmental and human health impacts • Common pests and diseases in the region • Common noxious and invasive plants in the region and how to manage these	Protect and Conserve Soils Protect and Create Wildlife Habitat Sustain Healthy Plants Use Sustainable Materials and Methods	Guiding Principles and BMPs Sustainable Landscape Management, Chs. 6, 7 Designing the Sustainable Site Chs. 7, 8 Sustainable Lawn Care Introduction to IPM Grow Smart, Grow Safe
20	LECTURE 2: IPM Monitoring Tools	Develop skills and use tools for pest and disease monitoring Determine key plants susceptible to pests Familiarity with the signs and symptoms of common insects and diseases in the local landscape Be familiar with invasive plants, including noxious weeds of local concern Create a systematic approach to monitoring and pest incidence recordkeeping	• Understanding IPM decision-making process • Understanding pest and disease thresholds and monitoring process • Common insect pests • Differences between insect pests and beneficials • Key plants in a landscape that are most susceptible to pests • Common diseases • Common weeds, invasive plants, and noxious weeds		

TITLE: Integrated Pest Management and Environmental Topics (P. 2)

INSTRUCTORS: Ladd Smith, In Harmony Sustainable Landscapes, and Ray Willard, WSDOT

SESSION LENGTH: 1.5 HRS

MIN	COMPONENT	LEARNING OBJECTIVES	TOPICS TO COVER	BMPs	STUDY MATERIALS
15	ACTIVITY 1: Monitoring tools	Practice observing signs and symptom of common pests in the landscape(scenarios/pictures) Practice using a monitoring form	• Field exercise on campus grounds	Protect and Conserve Soils Protect and Create Wildlife Habitat Sustain Healthy Plants Use Sustainable Materials and Methods	Guiding Principles and BMPs Sustainable Landscape Management Chs. 6. 7 Designing the Sustainable Site Chs. 7, 8 Sustainable Lawn Care Introduction to IPM – monitoring sections and sample monitoring sheet
15	LECTURE 3: Conserving beneficial organisms in the sustainable landscape	Identify common beneficial insects and organisms Explain strategies to protect beneficials in the landscape Articulate the locations of key habitats for beneficials	• Recognizing and managing beneficial insects and organisms in a landscape • Understanding habitat management to conserve beneficial organisms		
15	ACTIVITY 2: PHC self-guided quiz	a. Identify 3 common invasive or noxious weeds and 2 common beneficial insects from samples or pictures b. Write a PHC management strategy for each weed and insect	• Diagnosis • Multi-year strategies • Thinking about lifecycles		
5	WRAP UP	Group Discussion: Results of PHC quiz			

MIN	COMPONENT	DESCRIPTION	CLASS MATERIALS	SAVI
20	LECTURE 1: PHC, IPM	PHC programs and IPM strategies	None	Auditory/Visual
20	LECTURE 2: Monitoring	IPM decision-making, knowledge of pests, monitoring and recordkeeping strategies		Auditory/Visual
15	ACTIVITY 1	Practice observing signs and symptom of common pests in the landscape(scenarios/pictures) Practice using a monitoring form		Somatic/Auditory/Visual/Intellectual
15	LECTURE 3: Beneficials	Knowledge of, conservation strategies and management of beneficial organisms	None	Auditory/Visual
15	ACTIVITY 2	PHC quiz	Quiz worksheet, pictures or specimens of 5 weeds and 5 beneficials	Somatic/Auditory/Visual/Intellectual
5	WRAP UP	Discussion and answers to PHC quiz		Auditory/Intellectual

TITLE: Communicating Sustainability to your Managers and Clients **INSTRUCTOR: Will Bailey, Signature Landscapes and Ladd Smith, In Harmony Sustainable Landscaping** **SESSION LENGTH: 30 MIN**

MIN	COMPONENT	LEARNING OBJECTIVES	TOPICS TO COVER	BMPs	STUDY MATERIALS
10	PANEL DISCUSSION	Instructors talk about their experiences with communicating and implementing sustainability into their commercial and residential programs	Communication strategies for leading change Understanding and working with resistance Common issues and solutions Successes and challenges	ALL	Program Guidelines and BMPs
15	ACTIVITY 1	Open discussion of participant experiences and questions			
5	WRAP UP	Discussion: What was one important new concept you will take away from this session?			

MIN	COMPONENT	DESCRIPTION	CLASS MATERIALS	SAVI
5-10	PANEL DISCUSSION	Instructor share experiences	none	Auditory/Intellectual
15-20	ACTIVITY 1	Open Q & A and group share experiences	none	Auditory/Intellectual
5	WRAP UP	Discussion: What was one important new concept you will take away from this session?	none	Auditory/Intellectual

TITLE: Integrating Sustainability into Landscape Management and Decision-Making

INSTRUCTOR: Barbara DeCaro, Seattle Parks and Recreation

SESSION LENGTH: 2 HRS

MIN	COMPONENT	LEARNING OBJECTIVES	TOPICS TO COVER	BMPs	STUDY MATERIALS
15	INTRO/LECTURE 1	Increase understanding of BMPs and how they can be used Experience a team approach to landscape management planning Introduce how sustainable landscaping practices can be incorporated into your program	• How design, construction and maintenance are holistically integrated in the sustainable landscape • Developing a Landscape Management Plan(LMP) • Utilizing stormwater management practices • Using sustainable methods and materials • Conservation of energy and water use • Conserving, protecting, and enhancing wildlife habitat • Closed loop practices • Renovating toward a more sustainable landscape • Managing a sustainable landscape	ALL	Program Guidelines and BMPs Sustainable Landscape Management Chs. 1-2, 4-8 The Case for Sustainable Landscapes Designing the Sustainable Site Soils and Soil testing www.buildingsoil.org NW Regional Pruning Guide: Plant Amnesty RainWise: Seattle Public Utilities Best Irrigation Practices Clean Cities Guide to Alternative Fuel Commercial Lawn Equipment Sustainable Lawn Care Intro to IPM
40	ACTIVITY 1	Design, Construction, Maintenance specific aspects of an LMP	Specific BMPs applicable to a landscape site	As applicable to site	As applicable to site
60	ACTIVITY 2	Team integration of BMPs in each category Group Reports	Integration of design, construction, and maintenance BMPs to a landscape site	As applicable to site	As applicable to site
5	WRAP UP	Discussion: What was one thing you will take away from this session?			

MIN	COMPONENT	DESCRIPTION	CLASS MATERIALS	SAVI
15	LECTURE 1	Session overview Elements of an LMP Instructions for activities	none	Auditory/Visual
40	ACTIVITY 1	Standing Team Exercise. Design, construction, and maintenance teams assess a site separately and choose sustainable BMPs to implement	Landscape Site Plan Design, Construction, Maintenance BMP checklists Pencils/pens	Somatic/Auditory/Visual/Intellectual
60	ACTIVITY 2	Teams merge and discuss/negotiate/defend BMPs to implement	Landscape Site Plan Final BMP checklist	Somatic/Auditory/Visual/Intellectual
5	WRAP UP	Discussion: What will each of you take away from this session?	none	Auditory/Intellectual