

CTE/ROP 3D Computer Animation A/B

San Diego County Office of Education - Sweetwater Union High School District Pacing Guide/Course Description

Course Length: 2 Semesters	Classroom Instruction: 180 hours
SUHSD Course Number:	Grade Level: 10, 11, 12
SDCOE Course Number:	SDCOE Total Hours:
CBEDS Number/Title:	Year of Implementation:
Course Pre-requisites: None	Articulation (school/credits): None
CTE Industry Sector: Arts, Media, and Entertainment	CTE Pathway(s): Media and Design Arts
Job Titles: Animator, Creative Director, Art Director, Artist, Graphic Artist, Graphic Designer, Illustrator, 3D Artist, 3D Animator, Animation Director	
Credential Information: Preliminary or Clear Full-Time Designated Subjects CTE Teaching Credential in	
Required Textbooks: None Supplemental Instructional Materials: Learning Maya 3 by Alias/Wave front	
<p>Course Description: 3D Computer Animation A/B includes storytelling through computer animation and the application of the elements and principles of design, the study of the history of art/animation, and an introduction to basic sketching for storyboard design and technical drawing skills for 3D design. It provides students with the opportunity to self-express and communicate their own ideas through the study of character design, backgrounds, props, digital painting, special effects, scene development, storyboard development and script writing/story writing, with the application to aesthetic theories. Students will work individually and in teams to create and plan an animated short story, through story design and implementation to a hand drawn storyboard, character development, and finally computer animation. They will analysis formally and aesthetically their group and individual work. Character development will concentrate on brining life to the character using drawings and clay model studies created by the student. Students will experience working with different mediums (a variety of different pencils, pen and ink, watercolor, tempera, digital animation, digital imaging and clay) to create storyboards and to design their own animated scenes and short stories. A fine art teacher will primarily teach this class with a background in Computer Graphics or an Industrial Arts teacher with an emphasis in Computer Graphics and background in the fine arts.</p>	

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Semester 1

Unit 1: Introduction to 3-D Design and Animation

Unit 2: Basic Safety

Unit 3: File Management and Integration

Unit 4: Basic Computer Operation

Unit 5: Computer Graphics and Digital Imaging

Unit 6: 2D & 3D Animation & Design

Semester 2

Unit 1: Computer Animation

Unit 2: Basic Computer Operation

Unit 3: Opportunities/Resources

Unit 4: Occupational Knowledge and Skills

Unit 5: Work Place Skills and Behaviors

Unit 6: Job Acquisition Skills/Lifelong Learning Opportunities

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<u>Semester 1 - Unit 1 – Introduction to 3-D Design and Animation (10 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>1A - Demonstrates language, writing and math skills necessary for 3D design and animation.</p> <p>1B - Understands 2D design production terminology.</p> <p>1C - Understands in 3D design production terminology.</p> <p>1D - Demonstrates understanding and application of basic tools, concepts and program interfaces.</p> <p>1E - Demonstrates care in the handling of media production hardware and software.</p> <p>1F - Demonstrates understanding and application of art history and art fundamentals.</p>	<p><u>Career Technical Education:</u> *IT/TC/ (4.0) Students know how to use contemporary and emerging technological resources in diverse and changing personal, community, and workplace environments</p> <p><u>Core Academic:</u> *ELA/R/G11-12/ (1.3) Discern the meaning of analogies encountered, analyzing specific comparisons as well as relationships and inferences.</p>	<p>1A: History of animation</p> <p>1B: Basic Art fundamentals</p> <p>1C: Production environment</p> <p>1D: Hardware and software</p> <p>1E: Computer 2D & 3D static and animation today</p> <p>1F: Computer ethics and copyright issues</p>	<p><u>Teacher & Student Resources:</u> <i>*Supplemental Instructional Materials:</i> -Learning Maya 3 by Alias Wavefront -Cartoon Animation by Preston Blair -Designing Cartoon Characters for Animation by Brian Lemay -Gardners Art Through the Ages by Tansy and Kleiner -Layout and Design by Brian Lemay -The Animator’s Workbook by Tony White -The Illusion of Life by Frank Thomas and Ollie Johnston</p>

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<u>Semester 1 - Unit 2 – Safety (1 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>2A - Demonstrates safe production practices via proper use of hardware and software.</p> <p>2B - Demonstrates understanding and application of classroom/studio emergency procedures.</p>	<p><u>Career Technical Education:</u> *AME/HS/ (6.0) Students understand health and safety policies, procedures, regulations, and practices, including the use of equipment and handling of hazardous materials</p> <p><u>Core Academic:</u> *ELA/R/G9-10/ (2.6) Demonstrate use of sophisticated learning tools by following technical directions (e.g., those found with graphic calculators and specialized software programs and In access guides to World Wide Web sites on the Internet).</p>	<p>2A: Safe equipment operation</p> <p>2B: Safe production environment</p>	<p><u>Teacher & Student Resources:</u> *Supplemental Instructional Materials: -Learning Maya 3 by Alias Wavefront -Cartoon Animation by Preston Blair -Designing Cartoon Characters for Animation by Brian Lemay -Gardners Art Through the Ages by Tansy and Kleiner -Layout and Design by Brian Lemay -The Animator’s Workbook by Tony White -The Illusion of Life by Frank Thomas and Ollie Johnston</p>

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<u>Semester 1 - Unit 3 – Computer Skills (14hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>3A - Understands basic computer operation and terminology.</p> <p>3B - Understands computer operating systems, used in 2 & 3D design and animation.</p> <p>3C - Understands local area networks.</p> <p>3D - Understands a variety of hardware, such as Monitors, CDRW ROM drives, DVD burners, scanners, Flash Cards, and printers, utilized in the project production.</p> <p>3E - Understands file management activities.</p>	<p><u>Career Technical Education:</u> *IT/MSSVP/ (B2.1) Know multiple ways in which to transfer information and resources (e.g., text, data, sound, video, still images) between software programs and systems. (B2.3) Use multiple online search techniques and resources to acquire information</p> <p><u>Core Academic:</u> *ELA/R/G9-10/ (2.6) Demonstrate use of sophisticated learning tools by following technical directions (e.g., those found with graphic calculators and specialized software programs and In access guides to World Wide Web sites on the Internet).</p>	<p>3A: File Management and Integration A. Finding, Deleting, Moving and Saving B. File Format/Size</p> <p>3B: Management C. Back-Up D. Font Management</p> <p>3C: Basic Computer Operation A. Ones and Zeros B. Hardware v. Software C. Troubleshooting D. Networks</p>	<p><u>Teacher & Student Resources:</u> *Supplemental Instructional Materials: -Learning Maya 3 by Alias Wavefront -Cartoon Animation by Preston Blair -Designing Cartoon Characters for Animation by Brian Lemay -Gardners Art Through the Ages by Tansy and Kleiner -Layout and Design by Brian Lemay -The Animator's Workbook by Tony White -The Illusion of Life by Frank Thomas and Ollie Johnston</p>

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<u>Semester 1 - Unit 4 – Computer Graphics and Digital Imaging (30 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>4A - Understands basic terminology, techniques, software and hardware related to computer graphics.</p> <p>4B - Understands computer graphic design considerations.</p> <p>4C - Produces composite two-dimensional and three dimensional computer graphic images utilizing appropriate graphic application/s and output device/s.</p> <p>4D - Produces digital images utilizing a variety of photo manipulation software in combination with 3D design and animation software.</p>	<p><u>Career Technical Education:</u> *IT/MSSVP/ (B2.1) Know multiple ways in which to transfer information and resources (e.g., text, data, sound, video, still images) between software programs and systems. (B2.3) Use multiple online search techniques and resources to acquire information <u>Core Academic:</u> *VAPA/VA/PR/AV (4.4) Articulate the process and rationale for refining and reworking one of their own works of art. *ELA/LS/G9-12/ (1.3) Interpret and evaluate the various ways in which events are presented and information is communicated by visual image makers (e.g., graphic artists, documentary filmmakers, Illustrator, news photographers). (1.10) Evaluate when to use different kinds of effects (e.g., visual, music, sound, graphics) to create effective productions. (1.14) Analyze the techniques used in media messages for a particular audience and evaluate their effectiveness (e.g., Orson Welles' radio broadcast "War of the Worlds"). *ELA/WS/G9-12 (1.5) Use language in natural, fresh, and vivid ways to establish a specific tone. *M/AI/G9-12/ (24.3) Students use counterexamples to show that an assertion is false and recognize that a single counterexample is sufficient to refute an assertion. *S/IE/G9-12/ (1.d) Formulate explanations by using logic and evidence</p>	<p>4A: Software and hardware</p> <p>4B: Design considerations</p> <p>4C: Output considerations</p>	<p><u>Teacher & Student Resources:</u> *Supplemental Instructional Materials: -Learning Maya 3 by Alias Wavefront -Cartoon Animation by Preston Blair -Designing Cartoon Characters for Animation by Brian Lemay -Gardners Art Through the Ages by Tansy and Kleiner -Layout and Design by Brian Lemay -The Animator's Workbook by Tony White -The Illusion of Life by Frank Thomas and Ollie Johnston</p>

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<u>Semester 1 - Unit 5 – 2D&3D Computer Animation & Design (35 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>5A - Understands basic terminology, techniques, software and hardware related to page layout.</p> <p>5B - Imports 2D & 3D graphics created in 2D & 3D design and animation programs for use as enhancements for page layout projects in this class and other classes.</p> <p>5C - Utilizes Adobe Acrobat to convert static projects to PDF file format.</p>	<p><u>Career Technical Education:</u> *AME/C/2.4LS/LSSA/G11-12/ (2.4) Deliver multimedia presentations: a. Combine text, images, and sound by incorporating information from a wide range of media, including films, newspapers, magazines, CD-ROMs, online information, television, videos, and electronic media-generated images. b. Select an appropriate medium for each element of the presentation. c. Use the selected media skillfully, editing appropriately and monitoring for quality. d. Test the audience’s response and revise the presentation accordingly.</p> <p><u>Core Academic:</u> *ELA/LS/G9-12/ (1.3) Choose logical patterns of organization (e.g., chronological, topical, cause and effect) to inform and to persuade, by soliciting agreement or action, or to unite audiences behind a common belief or cause. (1.10) Analyze historically significant speeches (e.g., Abraham Lincoln’s “Gettysburg Address,” Martin Luther King, Jr.’s “I Have a Dream”) to find the rhetorical devices and features that make them memorable. (1.14) Identify the aesthetic effects of a media presentation and evaluate the techniques used to create them (e.g., compare Shakespeare’s Henry V with Kenneth Branagh’s 1990 film version). *ELA/WS/G9-12 (1.5) Use language in natural, fresh, and vivid ways to establish a specific tone.</p>	<p>5A: Program Interface</p> <p>5B: Basic concepts</p> <p>5C: Basic tools</p>	<p><u>Teacher & Student Resources:</u> *Supplemental Instructional Materials: -Learning Maya 3 by Alias Wavefront -Cartoon Animation by Preston Blair -Designing Cartoon Characters for Animation by Brian Lemay -Gardners Art Through the Ages by Tansy and Kleiner -Layout and Design by Brian Lemay -The Animator’s Workbook by Tony White -The Illusion of Life by Frank Thomas and Ollie Johnston</p>

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	<p>*M/AI/G9-12/ (24.3) Students use counterexamples to show that an assertion is false and recognize that a single counterexample is sufficient to refute an assertion.</p>		
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<u>Semester 2 - Unit 1 – Computer Animation (40 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>1A - Understands basic terminology, techniques, software and hardware related to 2D & 3D computer animation.</p> <p>1B - Understands two-dimensional computer animation software and techniques.</p> <p>1C - Understands three-dimensional computer animation software and techniques.</p> <p>1D - Produces a variety of three-dimensional illustrations and animations.</p>	<p><u>Career Technical Education:</u> *AME/C/2.4LS/LSSA/G11-12/ (2.4) Deliver multimedia presentations: a. Combine text, images, and sound by incorporating information from a wide range of media, including films, newspapers, magazines, CD-ROMs, online information, television, videos, and electronic media-generated images. b. Select an appropriate medium for each element of the presentation. c. Use the selected media skillfully, editing appropriately and monitoring for quality. d. Test the audience’s response and revise the presentation accordingly.</p> <p><u>Core Academic:</u> *ELA/WA/G11-12 (2.1) Analyze both the features and the rhetorical devices of different types of public documents (e.g., policy statements, speeches, debates, platforms) and the way in which Authors use those features and devices. (2.6) Critique the power, validity, and truthfulness of arguments set forth in public documents; their appeal to both friendly and hostile audiences; and the extent to which the arguments anticipate and address reader concerns and counterclaims (e.g., appeal to Reason, to authority, to pathos and emotion). *M/GM/G8-12 (11.0) Students determine how changes in dimensions affect the perimeter, area, and volume of common geometric figures and solids *M/A1/G8-12 (24.3) Students use counterexamples to show that an assertion is false and recognize that a</p>	<p>1A: Production considerations</p> <p>1B: Design considerations</p> <p>1C: Final output considerations</p> <p>1D: Scripting and Storyboarding</p> <p>1E: Project Work – data capture, 2D & 3D (static and motion)</p>	<p><u>Teacher & Student Resources:</u> *Supplemental Instructional Materials: -Learning Maya 3 by Alias Wavefront -Cartoon Animation by Preston Blair -Designing Cartoon Characters for Animation by Brian Lemay -Gardners Art Through the Ages by Tansy and Kleiner -Layout and Design by Brian Lemay -The Animator’s Workbook by Tony White -The Illusion of Life by Frank Thomas and Ollie Johnston</p>

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	single counterexample is sufficient to refute an assertion.		
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<u>Semester 2 - Unit 2 – Technical Skills (20 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>2A - Understands basic equipment handling techniques.</p> <p>2B - Understands basic preventative techniques.</p> <p>2C - Understands basic equipment troubleshooting techniques.</p>	<p><u>Career Technical Education:</u> *IT/MSSVP/ (B3.1) Understand the appropriate peripherals and hardware needed to achieve maximum productivity for various projects. (B3.2) Know how to identify and integrate various types of peripherals and hardware to meet project requirements. (B4.1) Use a logical and structured approach to isolate and identify the source of problems and to resolve problems (B5.2) Know the relative features, strengths, and weaknesses of different authoring programs and cross-platform issues. (B5.10) Differentiate among various versions of Internet programming languages.</p> <p><u>Core Academic:</u> *M/A1/G8-12 (24.3) Students use counterexamples to show that an assertion is false and recognize that a single counterexample is sufficient to refute an assertion. *S/SI/G9-12 (1d) Formulate explanations by using logic and evidence.</p>	<p>2A: Ones and Zeros</p> <p>2B: Hardware v. Software</p> <p>2C: Troubleshooting</p> <p>2D: Networks</p>	<p><u>Teacher & Student Resources:</u> *Supplemental Instructional Materials: -Learning Maya 3 by Alias Wavefront -Cartoon Animation by Preston Blair -Designing Cartoon Characters for Animation by Brian Lemay -Gardners Art Through the Ages by Tansy and Kleiner -Layout and Design by Brian Lemay -The Animator’s Workbook by Tony White -The Illusion of Life by Frank Thomas and Ollie Johnston</p>

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<u>Semester 2 - Unit 3 – Continuing Education (5 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>3A - Has knowledge of resources available for continuing education related to 3D design and animation.</p>	<p><u>Career Technical Education:</u> *AME/CPM/ (3.0) Students understand how to make effective decisions, use career information, and manage personal career plans</p> <p><u>Core Academic:</u> *ELA/WA/G11-12 (2.5) Write job applications and résumés: a. Provide clear and purposeful information and address the intended audience appropriately. b. Use varied levels, patterns, and types of language to achieve intended effects and aid comprehension. c. Modify the tone to fit the purpose and audience. d. Follow the conventional style for that type of document (e.g., résumé, memorandum) and use page formats, fonts, and spacing that contribute to the readability and impact of the document.</p>	<p>3A: Trade school</p> <p>3B: Community colleges and universities</p> <p>3C: Print (trade magazines, books, catalogs CD ROM)</p> <p>3D: Vendors</p> <p>3E: Trade shows</p> <p>3F: User groups</p> <p>3G: Production facilities</p> <p>3H: Professional organizations</p> <p>3I: On line: Training, skill marketing, job search, etc.</p> <p>3J: Video / actual (guest speakers) examples of animation</p>	<p><u>Teacher & Student Resources:</u> *Supplemental Instructional Materials: -Learning Maya 3 by Alias Wavefront -Cartoon Animation by Preston Blair -Designing Cartoon Characters for Animation by Brian Lemay -Gardner's Art Through the Ages by Tansy and Kleiner -Layout and Design by Brian Lemay -The Animator's Workbook by Tony White -The Illusion of Life by Frank Thomas and Ollie Johnston</p>

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<u>Semester 2 - Unit 4 – Occupational Knowledge and Skills(Ongoing)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>4A - Accessing and utilizing technology and information</p> <p>4B - Practicing occupational safety standards</p> <p>4C - Thinking critically and solving problems effectively</p> <p>4D - Using basic skills in reading, writing, mathematics, listening and speaking as they relate to occupation specific skills</p> <p>4E - Attaining a comprehensive understanding of all aspects of industry the individual is preparing to enter</p> <p>4F - Applying knowledge to real world problems and situations</p>	<p><u>Career Technical Education:</u></p> <p>*AME/CPM/</p> <p>(3.1) Know the personal qualifications, interests, aptitudes, knowledge, and skills necessary to succeed in careers.</p> <p>(3.2) Understand the scope of career opportunities and know the requirements for education, training, and licensure.</p> <p>(3.5) Understand the past, present, and future trends that affect careers, such as technological developments and societal trends, and the resulting need for lifelong learning.</p> <p>(3.6) Know important strategies for self-promotion in the hiring process, such as job applications, résumé writing, interviewing skills, and preparation of a portfolio.</p> <p>*AME/PSCT/</p> <p>(5.30) Use critical thinking skills to make informed decisions and solve problems.</p> <p>*AME/HS/</p> <p>(6.3) Know how to take responsibility for a safe and healthy work environment.</p> <p>*AME/RF/</p> <p>(7.2) Understand the importance of accountability and responsibility in fulfilling personal, community, and workplace roles.</p> <p>(7.3) Understand the need to adapt to varied roles and responsibilities.</p> <p>(7.7) Develop a personal commitment to and apply high-quality craftsmanship to a product or presentation and continually refine and perfect it.</p> <p>*AME/ELR/</p> <p>(8.4) Adhere to the copyright and intellectual property laws and regulations, and use and cite proprietary information appropriately.</p>	<p>4A: Accessing Information</p> <p>4B: Safety in the workplace</p> <p>4C: Critical Thinking</p> <p>4D: Workplace skills</p>	<p><u>Teacher & Student Resources:</u></p> <p>*Supplemental Instructional Materials:</p> <p>-Learning Maya 3 by Alias Wavefront</p> <p>-Cartoon Animation by Preston Blair</p> <p>-Designing Cartoon Characters for Animation by Brian Lemay</p> <p>-Gardners Art Through the Ages by Tansy and Kleiner</p> <p>-Layout and Design by Brian Lemay</p> <p>-The Animator’s Workbook by Tony White</p> <p>-The Illusion of Life by Frank Thomas and Ollie Johnston</p>

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	<p>(8.5) Understand the ethical implications of the degree of influence media, arts, and performances have on individuals. *AME/LT/</p> <p>(9.3) Understand how to organize and structure work individually and in teams for effective performance and the attainment of goals. *AME/TKS/</p> <p>(10.6) Know the appropriate skills and vocabulary of the art form. Core Academic: *ELA/R/G11-2/</p> <p>(2.5) Analyze an author's implicit and explicit philosophical assumptions and beliefs about a subject.</p>		
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<u>Semester 2 - Unit 5 –Work Place Skills and Behaviors (Ongoing)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>5A - Works independently and collaboratively.</p> <p>5B - Communicates effectively and appropriately.</p> <p>5C - Performs reliably and responsibly.</p> <p>5D - Respects diversity.</p>	<p><u>Career Technical Education:</u> *AME/ELR/ (8.0) Students understand professional, ethical, and legal behavior consistent with applicable laws, regulations, and organizational norms *AME/LT/ (9.0) Students understand effective leadership styles, key concepts of group dynamics, team and individual decision making, the benefits of workforce diversity, and conflict resolution *AME/MDAP/A1.2/CE/VA/ADV/G9-12/ (2.2) Plan and create works of art that reflect complex ideas, such as distortion, color theory, arbitrary color, scale, expressive content, and real versus virtual. (2.4) Demonstrate in their own works of art a personal style and an advanced proficiency in communicating an idea, theme, or emotion. <u>Core Academic:</u> *ELA/WA/G11-12/ (2.5) Write job applications and résumés: a. Provide clear and purposeful information and address the intended audience appropriately.</p>	<p>5A - Works independently</p> <p>5B - Communication</p> <p>5C - Reliability</p> <p>5D - Respect</p>	<p><u>Teacher & Student Resources:</u> *Supplemental Instructional Materials: -Learning Maya 3 by Alias Wavefront -Cartoon Animation by Preston Blair -Designing Cartoon Characters for Animation by Brian Lemay -Gardners Art Through the Ages by Tansy and Kleiner -Layout and Design by Brian Lemay -The Animator’s Workbook by Tony White -The Illusion of Life by Frank Thomas and Ollie Johnston</p>

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<u>Semester 2 - Unit 6 – Job Acquisition Skills/Lifelong Learning Opportunities (25 hours)</u>			
Competencies	Standards	Suggested Pacing	Resources/Materials
<p>6A - Completes an appropriate cover letter, resume and job application.</p> <p>6B - Demonstrates awareness of advanced career and educational opportunities and the need for continuous education.</p> <p>6C - Writes a cover letter to target a job.</p>	<p><u>Career Technical Education:</u> *AME/CPM/ (3.0) Students understand how to make effective decisions, use career information, and manage personal career plans</p> <p><u>Core Academic:</u> *ELA/WA/G11-12/ (2.5) Write job applications and résumés: a. Provide clear and purposeful information and address the intended audience appropriately.</p>	<p>A: Job search</p> <p>B: Resume (written and electronic)</p> <p>C: Portfolio (written and electronic)</p> <p>D: Researching employment opportunities</p> <p>E: Interview Techniques</p>	<p><u>Teacher & Student Resources:</u> *Supplemental Instructional Materials: -Learning Maya 3 by Alias Wavefront -Cartoon Animation by Preston Blair -Designing Cartoon Characters for Animation by Brian Lemay -Gardners Art Through the Ages by Tansy and Kleiner -Layout and Design by Brian Lemay -The Animator’s Workbook by Tony White -The Illusion of Life by Frank Thomas and Ollie Johnston</p>