



# Designing and Presenting a Model Building Project Using Recycled Materials with Online Research and Peer Feedback Opportunities

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## Introduction

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Welcome to this exciting lesson plan, where students will design and present a model building project using recycled materials, incorporating online research and peer feedback opportunities. This lesson plan is designed for 10-year-old students and aligns with the curriculum requirements for this age group. The lesson plan includes ELL/ESL support strategies to ensure that all students, regardless of their language proficiency, can participate and benefit from the lesson.

## Lesson Objectives

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- Students will be able to design and present a model building project using recycled materials.
- Students will be able to conduct online research to find information about sustainable building practices.
- Students will be able to provide and receive peer feedback on their model building projects.
- Students will be able to use digital tools and resources to enhance their learning experience.



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## Materials

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- Recycled materials (e.g., cardboard, paper, plastic bottles, cans)
- Digital tools and resources (e.g., online research databases, presentation software, online collaboration platforms)
- Model building software (e.g., SketchUp, Tinkercad)
- Presentation equipment (e.g., laptops, tablets, projectors)
- Graphic organizers (e.g., Venn diagrams, concept maps)
- Feedback rubrics
- Reflection journals

## Procedure

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### Introduction and Overview

- Introduce the lesson objectives and topic.
- Show examples of model buildings made from recycled materials.
- Ask students to share their own experiences with recycling and model building.
- Provide ELL/ESL support by using visual aids and simple language.

### Online Research

- Introduce online research databases and tools.
- Demonstrate how to conduct research and find relevant information.
- Have students work in pairs to conduct research on sustainable building practices.
- Provide ELL/ESL support by using graphic organizers and sentence stems.



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## Design and Planning

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Have students design and plan their model building project. Encourage students to use recycled materials and think creatively. Circulate around the room to provide guidance and support. Provide ELL/ESL support by using visual aids and simple language.

## Building and Construction

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Have students build and construct their model buildings. Encourage students to use problem-solving skills and think critically. Circulate around the room to provide guidance and support. Provide ELL/ESL support by using visual aids and simple language.



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## Peer Feedback and Presentation

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Have students present their model buildings to the class. Encourage peer feedback and discussion. Use digital tools to enhance the presentation and feedback process. Provide ELL/ESL support by using feedback rubrics and sentence stems.

## Conclusion and Reflection

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Summarize the key learning objectives and outcomes. Have students reflect on their learning experience and what they would do differently next time. Provide opportunities for students to ask questions and seek clarification. Provide ELL/ESL support by using reflection journals and visual aids.



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## Extension Tasks

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- Design a Sustainable Community: Have students design and build a sustainable community using recycled materials, incorporating green spaces, renewable energy sources, and eco-friendly buildings.
- Create a Public Service Announcement: Have students create a public service announcement about sustainability, using digital tools and resources to design and produce their announcement.
- Design and Build a Model of a Real-World Structure: Have students design and build a model of a real-world structure, such as a bridge or a building, using recycled materials and digital tools.



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## Assessment

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- **Formative Assessment:** Use observations, quizzes, and class discussions to assess student understanding and progress.
- **Summative Assessment:** Use a written report, presentation, and peer feedback to assess student learning and understanding.
- **ELL/ESL Support:** Use visual aids, graphic organizers, and sentence stems to support ELL/ESL students during the assessment process.

## ELL/ESL Support Strategies

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- **Visual Aids:** Use visual aids, such as pictures and diagrams, to support ELL/ESL students during the lesson.
- **Simple Language:** Use simple language and provide opportunities for students to ask questions and seek clarification.
- **Graphic Organizers:** Use graphic organizers, such as Venn diagrams and concept maps, to support ELL/ESL students during the research and design process.
- **Sentence Stems:** Use sentence stems to support ELL/ESL students during the presentation and feedback process.



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## Conclusion

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In conclusion, this lesson plan provides a comprehensive and engaging approach to learning about sustainability, conservation, and critical thinking. By incorporating digital tools and resources, and providing ELL/ESL support strategies, teachers can create a supportive and inclusive learning environment that meets the needs of diverse learners.

## Digital Tools and Resources

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- Online Research Databases: Use online databases, such as National Geographic Kids or Science Buddies, to conduct research on sustainable building practices.
- Presentation Software: Use presentation software, such as PowerPoint or Google Slides, to create and present model building projects.
- Online Collaboration Platforms: Use online collaboration platforms, such as Google Docs or Padlet, to facilitate group work and peer feedback.
- Model Building Software: Use model building software, such as SketchUp or Tinkercad, to design and build digital models.

## Implementation and Management

To effectively implement and manage the model building project, teachers should consider several key factors. First, it is essential to establish clear expectations and guidelines for the project, including the objectives, timelines, and evaluation criteria. This will help students understand what is expected of them and ensure that they stay on track. Additionally, teachers should provide students with access to the necessary resources and materials, such as recycled materials, digital tools, and software.

Teachers can also use project management tools, such as Trello or Asana, to help students organize their work and collaborate with their peers. These tools allow students to create tasks, set deadlines, and track progress, making it easier to manage the project and stay on schedule.

### Example

For example, a teacher can create a Trello board with separate lists for each stage of the project, such as research, design, and construction. Students can then create cards for each task and move them across the lists as they complete them, allowing the teacher to track progress and provide feedback.

## Assessment and Evaluation

Assessing and evaluating student learning is a critical component of the model building project. Teachers should use a variety of assessment strategies, including formative and summative assessments, to evaluate student understanding and progress. Formative assessments, such as quizzes and class discussions, can help teachers identify areas where students need additional support, while summative assessments, such as written reports and presentations, can provide a comprehensive evaluation of student learning.

### Case Study

For example, a teacher can use a rubric to assess student presentations, evaluating factors such as content, organization, and delivery. The teacher can also provide feedback to students, highlighting areas of strength and weakness, and suggesting ways for improvement.

### Reflection

After completing the project, students should reflect on their learning experience, identifying what they learned, what challenges they faced, and what they would do differently next time. This reflection can help students develop a growth mindset, recognizing that learning is a process and that mistakes are an opportunity for growth and improvement.

## Conclusion and Future Directions

In conclusion, the model building project provides a comprehensive and engaging approach to learning about sustainability, conservation, and critical thinking. By incorporating digital tools and resources, and providing opportunities for peer feedback and reflection, teachers can create a supportive and inclusive learning environment that meets the needs of diverse learners. As technology continues to evolve, it is essential to stay up-to-date with the latest trends and innovations, incorporating new tools and resources into the project to enhance student learning and engagement.

Future directions for the project may include incorporating emerging technologies, such as virtual and augmented reality, to create immersive and interactive learning experiences. Additionally, teachers can explore opportunities for collaboration with other schools and organizations, providing students with a global perspective and the chance to learn from others.

### Strategy

To implement the model building project, teachers can use a variety of strategies, including project-based learning, flipped classrooms, and gamification. These strategies can help create an engaging and interactive learning environment, motivating students to learn and take ownership of their education.



## Resources and References

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There are a variety of resources and references available to support the model building project, including online databases, educational websites, and textbooks. Teachers can use these resources to provide students with accurate and reliable information, and to stay up-to-date with the latest developments in the field.

### Resource

For example, the National Geographic Kids website provides a wealth of information on sustainability and conservation, including articles, videos, and interactive games. Teachers can use this resource to provide students with engaging and interactive learning experiences, and to support the development of critical thinking and problem-solving skills.

### Reference

Additionally, teachers can use references such as the United Nations Sustainable Development Goals to provide students with a global perspective on sustainability and conservation. This can help students understand the importance of these issues and the role they can play in creating a more sustainable future.

## Glossary and Definitions

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A glossary of terms and definitions is essential to support student understanding of the model building project. Teachers can provide students with a list of key terms and definitions, including sustainability, conservation, and critical thinking, to help them understand the concepts and principles underlying the project.

### Glossary

For example, the term "sustainability" can be defined as the ability to meet the needs of the present without compromising the ability of future generations to meet their own needs. This definition can help students understand the importance of sustainability and the role they can play in creating a more sustainable future.

### Definition

Additionally, teachers can provide students with definitions of key terms such as "conservation" and "critical thinking", to help them understand the concepts and principles underlying the project. This can help students develop a deeper understanding of the subject matter and apply their knowledge in real-world contexts.

## Appendix and Supplements

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The appendix and supplements provide additional information and resources to support the model building project. Teachers can use these resources to provide students with extra support and guidance, and to enhance the learning experience.

### Appendix

For example, the appendix can include additional information on the history of sustainability and conservation, or provide examples of successful sustainability projects from around the world. This can help students develop a deeper understanding of the subject matter and appreciate the complexity and nuance of the issues.

### Supplement

Additionally, teachers can use supplements such as worksheets, quizzes, and games to provide students with extra practice and reinforcement. These supplements can help students develop their critical thinking and problem-solving skills, and apply their knowledge in real-world contexts.



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