Group Number: _____
Student Names:_____ _____ _____ _____

Thorncrag Photo Journal – Monitoring Forest Health - Science Rubric
Theme throughout the project is: *How are urban forests essential to the health of a city? (Aesthetics, multi-use, and environment)*
MLR: D2 - Students describe and analyze the biological, physical, energy, and human influences that shape and alter Earth Systems.

Criteria	4 Exceeds the Standard	3 Meets the Standard	2 Partially Meets the Standard	1 Does Not Meet the Standard
Introduction: **Urban Forests** **Maine Forest Facts**	☐ Students include information from a variety of sources (at least 2 sources) which is relevant to the essential question.	☐ Students include information from one source which is relevant to the essential question.	☐ Students include information from one source, but it is not relevant to the essential question.	☐ Students do not include information from any sources, but rather misconstrue the info. OR students do not include information learned before the trip.
Introduction: Mrs. Hayward-Bates College – **Q&A about Thorncrag** (Include at least one photo of Thorncrag-overview)	☐ Students include information about the management of Thorncrag as well as at least 2 other pertinent facts. ☐ Students include several personal photos, which together portray a sophisticated and creative understanding of the importance of Thorncrag.	☐ Students include information about the management of Thorncrag as well as at least 1 other pertinent fact. ☐ Students include one personal photo of Thorncrag that showcases the importance of this urban forest.	☐ Students include information from the Q&A, but do not address the management of Thorncrag. ☐ Students include one personal photo of Thorncrag, but it does not show the importance of this urban forest.	☐ Students do not include any information from the Q&A of Mrs. Hayward ☐ Students do not include a personal photo of Thorncrag.
Section 1: Forest Health Indicator – **Lichens – Part 1**	☐ Students include a thorough discussion of the importance of lichens as bioindicators of air pollution using two or more reliable sources of information.	☐ Students include a general discussion of the importance of lichens as bioindicators of air pollution using one reliable source of information.	☐ Students include a minimal discussion of lichens, but do not indicate their importance as bioindicators of air pollution.	☐ Students do not include a discussion of lichens at all.

Criteria	4 Exceeds the Standard	3 Meets the Standard	2 Partially Meets the Standard	1 Does Not Meet the Standard
Section 1: Forest Health Indicator – **Lichens – Part 2**	☐ Students summarize the *Lichen Abundance data* that they collected <u>and</u> include a <u>detailed discussion</u> of how they gathered their data and what the data means to the health of Thorncrag. ☐ A photo of a group member using the grid transparency is included showing a <u>high level of detail.</u> ☐ Students include personal photos of <u>all three lichen types</u>: crustose, foliose, and fruticose lichens on trees, rocks, and /or ground. ☐ Students write <u>detailed qualitative</u> descriptions of each type of lichen they photographed.	☐ Students summarize the *Lichen Abundance data* that they collected <u>and</u> include a <u>general discussion</u> of how they gathered their data. ☐ A photo of a group member using the grid transparency is included with <u>some degree of detail</u>. ☐ Students include personal photos of any <u>two</u> of the following lichen types: crustose, foliose, or fruticose lichens on trees, rocks, and /or ground. ☐ Students write <u>general qualitative</u> descriptions of each type of lichen they photographed.	☐ Students summarize the *Lichen Abundance data* that they collected <u>OR</u> include a general discussion of how they gathered their data. ☐ A photo of a group member using the grid transparency is included, but it is so <u>vague</u> that you may not be able to tell what the student is doing. ☐ Students include personal photos of any <u>one</u> of the following lichen types: crustose, foliose, or fruticose lichens on trees, rocks, and /or ground. ☐ Students write <u>vague qualitative</u> descriptions of each type of lichen they photographed.	☐ Students <u>do not</u> summarize the *Lichen Abundance data* that they collected <u>nor</u> do they include a general discussion of how they gathered their data. ☐ Students <u>do not</u> include a photo of a group member using the grid transparency. ☐ Students <u>do not</u> include personal photos of lichen types. ☐ Students <u>do not</u> write any <u>qualitative</u> descriptions of lichens.
Section 2: Forest Health Indicator – **Size Diversity and Layer Diversity**	☐ All of Meets the Standard PLUS ☐ Students write <u>thorough</u> and <u>in-depth</u> description of how the forest plot does or does not show size and layer diversity, and the importance of diversity.	☐ Students <u>summarize</u> & <u>rate</u> the *Size & Layer Diversity* data collected. ☐ Students <u>photograph</u> size and layer diversity. ☐ Students write a <u>general</u> description how the forest plot does or does not show size and layer diversity, and the importance of diversity.	☐ Students summarize the *Size & Layer Diversity* data <u>OR</u> rate the overall forest diversity for their plot. ☐ Students photograph size diversity <u>or</u> layer diversity. ☐ Students write a <u>brief</u> description of forest diversity.	☐ Students <u>do not</u> summarize the *Size & Layer Diversity* data nor do they rate the overall forest diversity. ☐ <u>No photos</u> taken of forest diversity. ☐ Students <u>do not</u> write a description how the forest plot does or does not show forest diversity.

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Section 3: Forest Health Indicator – **Regeneration**	☐ All of Meets the Standard PLUS ☐ Students write a <u>thorough</u> and <u>in-depth</u> description of how their forest plot does or does not show regeneration, and the importance of regeneration to forest health.	☐ Students <u>summarize</u> the importance of the *Regeneration data* they collected <u>and rate</u> their forest plot. ☐ Students <u>photograph</u> forest regeneration. ☐ Students write a <u>general</u> description of how their forest plot does or does not show regeneration, and the importance of regeneration to forest health.	☐ Students summarize the importance of the *Regeneration data* they collected <u>OR</u> rate their forest plot. ☐ Students <u>attempt</u> to photograph forest regeneration, but miss the point. ☐ Students write a <u>brief</u> description of how their forest plot does or does not show regeneration OR they write of the importance of regeneration to forest health.	☐ Students <u>do not</u> summarize the importance of the *Regeneration data* they collected <u>nor</u> do they rate their forest plot. ☐ Students <u>do not</u> include any photos of regeneration. ☐ Students <u>do not</u> write a description of how their forest plot does or does not show regeneration, nor do they write of the importance of regeneration to forest health.
Section 4: Forest Health Indicator – **Snags & Woody Debris**	☐ All of Meets the Standard PLUS ☐ Students write a <u>thorough and detailed</u> description of how their forest plot does or does not show snags and woody debris, <u>and</u> the importance of this forest health indicator.	☐ Students <u>summarize</u> the *Snags and Woody Debris data* <u>and rate</u> their forest plot. ☐ Students <u>photograph</u> snags and woody debris. ☐ Students write a <u>general</u> description of how their forest plot does or does not show snags and woody debris, <u>and</u> the importance of this forest health indicator.	☐ Students summarize the *Snags and Woody Debris data* <u>OR</u> rate their forest plot. ☐ Students photograph snags or woody debris. ☐ Students write a <u>brief</u> description of how their forest plot does or does not show snags and woody debris, <u>OR</u> the importance of this forest health indicator.	☐ Students <u>do not</u> summarize the *Snags and Woody Debris data* <u>nor</u> do they rate their forest plot. ☐ Students <u>do not</u> photograph snags or woody debris. ☐ Students <u>do not</u> write a description of how their forest plot shows snags and woody debris, <u>nor</u> the importance of this forest health indicator.
Section 5: Forest Health Indicator – **Forest Health Data Summary**	☐ Students <u>discuss</u> the *Forest Health Data Summary* and write a <u>thorough and detailed</u> reason for their rating.	☐ Students discuss the *Forest Health Data Summary* and write a <u>general</u> reason for their rating.	☐ Students discuss the *Forest Health Data Summary* OR write a <u>brief</u> reason for their rating.	☐ Students <u>do not</u> discuss the *Forest Health Data Summary* <u>nor</u> do they write a reason for their rating.

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Section 6: Forest Health Indicator – **Evaluating Tree Benefits**	☐ All of Meets the Standard PLUS ☐ Students <u>summarize</u> the *Evaluating Tree Benefits data* <u>and</u> write a <u>detailed</u> discussion of the benefits of their chosen tree.	☐ Students <u>summarize</u> the *Evaluating Tree Benefits data* <u>and</u> write a <u>general</u> discussion of the benefits of their chosen tree. ☐ Students <u>photograph</u> their chosen tree and identify its species.	☐ Students <u>summarize</u> the *Evaluating Tree Benefits data* <u>OR</u> write a <u>brief</u> discussion of the benefits of their chosen tree. ☐ Students <u>photograph</u> their chosen tree and attempt to identify its species, but were incorrect.	☐ Students <u>do not</u> summarize the *Evaluating Tree Benefits data* <u>nor</u> do they write a discussion of the benefits of their chosen tree. ☐ Students do not <u>photograph</u> their chosen tree <u>nor</u> do they attempt to identify its species.
Section 7: **Conclusion**	*E.Q. How are urban forests essential to the health of a city? (aesthetics, multi-use, and environment)* ☐ Students thoroughly answer all parts of the essential question and display <u>in-depth</u> knowledge of the subject ☐ Students <u>clearly and thoroughly</u> summarize how all parts of their forest research support their conclusion.	*E.Q. How are urban forests essential to the health of a city? (aesthetics, multi-use, and environment)* ☐ Students thoroughly answer <u>all</u> parts of the essential question and display <u>adequate</u> knowledge of the subject. ☐ Students write a <u>general</u> summary as to how all parts of their forest research support their conclusion.	*E.Q. How are urban forests essential to the health of a city? (aesthetics, multi-use, and environment)* ☐ Students answer <u>two</u> parts of the essential question and display <u>rudimentary</u> knowledge of the subject. ☐ Students write a vague summary as to how some of the parts of their forest research support their conclusion.	*E.Q. How are urban forests essential to the health of a city? (aesthetics, multi-use, and environment)* ☐ Students answer <u>one</u> part of the essential question briefly <u>OR</u> Students do not answer the essential question. ☐ Students <u>do not</u> summarize how their forest research supports their conclusion.
Section 8: **Student Reflections** _____ _____ _____ _____	☐Each student includes a <u>thorough</u> and <u>insightful</u> reflection detailing their impressions before AND after the trip.	☐Each student includes an <u>adequate</u> reflection detailing their impressions of the trip.	☐Each student includes a <u>brief</u> reflection detailing their impressions of the trip.	☐ Students do not include a reflection paragraph.
Organization	☐ All of Meets the Standard PLUS ☐The project stands out and is <u>exemplary</u>.	☐The information is organized so that the categories flow logically. ☐The project is <u>neat.</u>	☐ The information is organized but the categories do not flow logically. ☐ The project is <u>messy</u>.	☐The information is unorganized and does not flow logically. ☐The project is <u>sloppy</u>.

Grade yourself and your partners: Here is your opportunity to grade the work that you did and that your partners did.

Your name:_____ Grade you give yourself:_____

What you contributed to the project?_____

_____

Your work ethic: Hard worker   Average worker   Let others do most of the work   Did not contribute

Partner Name:_____Grade you give him/her:_____

What did he/she contribute to the project?_____

_____

 His/Her work ethic: Hard worker   Average Worker   Let others do most of the work   Did not contribute

Partner Name:_____Grade you give him/her:_____

What did he/she contribute to the project?_____

_____

 His/Her work ethic: Hard worker   Average Worker   Let others do most of the work   Did not contribute

Partner Name:_____Grade you give him/her:_____

What did he/she contribute to the project?_____

_____

 His/Her work ethic: Hard worker   Average Worker   Let others do most of the work   Did not contribute