



# 4-H LEGO AG PROJECT



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The Agricultural Industry is always looking to renovation or the introduction of new technology. Through projects like this Lego Ag, we are taking tiny steps towards being a part of that. This project is designed to get us think outside the box and to expand on an existing idea or completely coming up with something new.

The environment has been constantly changing over years with the existence of man. Our demands on the environment have changed considerably over those years as well. Our growth in population, changing weather patterns, demands of product, economics, loss of farming development, and loss of the family farm, just to name a few have impacted this industry greatly not only locally, nationally, but internationally as well.

In the 1900's we had a hard time getting farmers to see that value in research or change to new advanced ways of doing things. Recently we have seen the introductions to pivots & GPS guided tractors. We have seen new hybrid seeds with faster growing times, disease resistant, drought resistant, certain weather tolerant, and bigger producing end product. All of these things came from research and development. Just think, just fifty years ago or less, who would have thought that you didn't even need to be in the tractor to farm.

Through this Lego project we are able to take a grassroots effort and try to develop or come to an appreciation of what it takes to develop these renovations or introductions of new technology to the Agricultural Industry. This project allows us to discover the journey from a vision or thought to us actually building a prototype with Lego's. We develop this project through several steps:

- 1) Draft a blueprint of the project
- 2) List its functions
- 3) List parts needed to build
- 4) Build
- 5) Analyze and problem solving stage
- 6) Draft a redesigned blueprint with any changes
- 7) Build
- 8) Add motion (hydraulics, motors, wheels, gears, etc),
- 9) Analyze and problem solving stage
- 10) Draft a redesigned blueprint with any changes
- 11) Build final prototype
- 12) Draft a finalized blueprint

This project can lead to several career paths such as drafting, scientific research, mechanics, equipment design, as so on. With the world demands being what they are, this is an important industry to pay attention to. We know that the global demand of ethical and environmentally sound practices is at an all time high. This realization puts a demand upon the Ag Industry to be looking for new and innovative resources to adapt to these changes. The process in which the farmer, rancher, or producer run the day to day operations of life on the farm is rapidly under fire to keep up with these changes as well.

This project is designed to let youth explore the Ag Industry, discover these market demands, and then develop a project that meets those demands. They learn about design, drafting, marketing, production, global resources, environmental issues, S.T.E.M. (Science, Technology, Engineering, and Math), and mechanics in a kid friendly, fun, and unique way. We know that the world will always be dependent on the Ag Industry and so with this project we allow the youth to look into the future and dream it and develop it.

There are eight levels to this project. This allows the member to continue on with the project for several years.

## **Cloverbud**

Cloverbud memory book

Word Search

Lego Project

- > build a simple Lego construction that relates to Ag Industry  
Example: truck, tractor, plane, ect.

## **Level One**

Generic Record Book & Demonstration

Lego Project

> Blueprints

- 1) Initial
- 2) 1<sup>st</sup> Rebuild
- 3) 2<sup>nd</sup> Rebuild
- 4) Final

>Build a Lego construction that relates to Ag Industry and features the use of hydraulics

>Report on Agriculture or Farm Industry (Juniors- 50 words, Intermediates - 100 words, Seniors- 300 words)

- 1) Include what the product is
- 2) Explain the project's functions (what it does)
- 3) Explain the project's purpose (why it does what it does)
- 4) Explain who the project's is designed for
- 5) Explain why you designed the project
- 6) Include any problems, issues, or difficulties that occurred while working on your project

>Lego Project to display (must be the one designed and built for this project)

## **Level Two**

Generic Record Book & Demonstration

Lego Project

> Blueprints

- 1) Initial
- 2) 1<sup>st</sup> Rebuild
- 3) 2<sup>nd</sup> Rebuild
- 4) Final

>Build a Lego construction that relates to Ag Industry and features the use of a motor to generate motion.

>Report on Agriculture or Farm Industry (Juniors- 50 words, Intermediates - 100 words, Seniors- 300 words)

- 1) Include what the product is
- 2) Explain the project's functions (what it does)
- 3) Explain the project's purpose (why it does what it does)
- 4) Explain who the project's is designed for
- 5) Explain why you designed the project
- 6) Include any problems, issues, or difficulties that occurred while working on your project

>Lego Project to display (must be the one designed and built for this project)

### **Level Three**

Generic Record Book & Demonstration

Lego Project

> Blueprints

- 1) Initial
- 2) 1<sup>st</sup> Rebuild
- 3) 2<sup>nd</sup> Rebuild
- 4) Final

>Build a Lego construction that relates to Ag Industry. This project should reflect Solar Power and features the use of a motor.

>Report on Agriculture or Farm Industry (Juniors- 50 words, Intermediates - 100 words, Seniors- 300 words)

- 1) Include what the product is
- 2) Explain the project's functions (what it does)
- 3) Explain the project's purpose (why it does what it does)
- 4) Explain who the project's is designed for
- 5) Explain why you designed the project
- 6) Include any problems, issues, or difficulties that occurred while working on your project

>Lego Project to display (must be the one designed and built for this project)

### **Level Four**

Generic Record Book & Demonstration

Lego Project

> Blueprints

- 1) Initial
- 2) 1<sup>st</sup> Rebuild
- 3) 2<sup>nd</sup> Rebuild
- 4) Final

>Build a Lego construction that relates to Ag Industry. This project should reflect Wind Power and features the use of a motor.

>Report on Agriculture or Farm Industry (Juniors- 50 words, Intermediates - 100 words, Seniors- 300 words)

- 1) Include what the product is
- 2) Explain the project's functions (what it does)

- 3) Explain the project's purpose (why it does what it does)
- 4) Explain who the project's is designed for
- 5) Explain why you designed the project
- 6) Include any problems, issues, or difficulties that occurred while working on your project

>Lego Project to display (must be the one designed and built for this project)

### **Level Five**

Generic Record Book & Demonstration

Lego Project

- > Blueprints
  - 1) Initial
  - 2) 1<sup>st</sup> Rebuild
  - 3) 2<sup>nd</sup> Rebuild
  - 4) Final

>Build a Lego construction that relates to Ag Industry. This project should reflect Solar Power and features the use of (2) motor.

>Report on Agriculture or Farm Industry (Juniors- 50 words, Intermediates - 100 words, Seniors- 300 words)

- 1) Include what the product is
- 2) Explain the project's functions (what it does)
- 3) Explain the project's purpose (why it does what it does)
- 4) Explain who the project's is designed for
- 5) Explain why you designed the project
- 6) Include any problems, issues, or difficulties that occurred while working on your project

>Lego Project to display (must be the one designed and built for this project)

### **Level Six**

Generic Record Book & Demonstration

Lego Project

- > Blueprints
  - 1) Initial
  - 2) 1<sup>st</sup> Rebuild
  - 3) 2<sup>nd</sup> Rebuild
  - 4) Final

>Build a Lego construction that relates to Ag Industry. This project should reflect Wind Power and features the use of (2) motor.

>Report on Agriculture or Farm Industry (Juniors- 50 words, Intermediates - 100 words, Seniors- 300 words)

- 1) Include what the product is
- 2) Explain the project's functions (what it does)
- 3) Explain the project's purpose (why it does what it does)
- 4) Explain who the project's is designed for
- 5) Explain why you designed the project
- 6) Include any problems, issues, or difficulties that occurred while working on your project

>Lego Project to display (must be the one designed and built for this project)

## **Level Seven**

Generic Record Book & Demonstration

Lego Project

> Blueprints

- 1) Initial
- 2) 1<sup>st</sup> Rebuild
- 3) 2<sup>nd</sup> Rebuild
- 4) Final

>Build a Lego construction that relates to Ag Industry. This project should reflect Solar Power and features the use of (2) motor and hydraulics.

>Report on Agriculture or Farm Industry (Juniors- 50 words, Intermediates - 100 words, Seniors- 300 words)

- 1) Include what the product is
- 2) Explain the project's functions (what it does)
- 3) Explain the project's purpose (why it does what it does)
- 4) Explain who the project's is designed for
- 5) Explain why you designed the project
- 6) Include any problems, issues, or difficulties that occurred while working on your project

>Lego Project to display (must be the one designed and built for this project)

## **Level Eight**

Generic Record Book & Demonstration

Lego Project

> Blueprints

- 1) Initial
- 2) 1<sup>st</sup> Rebuild
- 3) 2<sup>nd</sup> Rebuild
- 4) Final

>Build a Lego construction that relates to Ag Industry. This project should reflect Wind Power and features the use of (2) motor and hydraulics.

>Report on Agriculture or Farm Industry (Juniors- 50 words, Intermediates - 100 words, Seniors- 300 words)

- 1) Include what the product is
- 2) Explain the project's functions (what it does)
- 3) Explain the project's purpose (why it does what it does)
- 4) Explain who the project's is designed for
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