Kindergarten Understanding by Design Unit

Title of Unit	A lady what?
Time Frame	1 month
Developed By	Catherine Brizard
School	Pinewood Elementary

Identify Desired Results (Stage 1)

Domain Areas:

Physical/motor: Within this unit, students will engage in fine motor activities that include cutting, coloring gluing etc.

Language/communication: Students will participate in oral communication as well as phonemic awareness.

Cognitive/intellectual: Students will develop the skills needed to reason as well as the necessary math skills needed for the activities such as counting spots.

Social/emotional: Students will take part in activities that require social interaction such as searching/exploring with others, open discussions aa well as discussing emotions when reading the story.

Creative/aesthetics: Students will gain an appreciation for color, sensation, light while using all of their senses. Students will have the opportunity to demonstrate creativity within every lesson of the unit.

Curricular(subject) Areas:

English Language Arts: The children will be introduced to the topic of ladybugs through a picture book. Throughout the story, students will explore language, sounds, phonics and the various forms of literacy they may encounter. Students will also gain an understanding of the different characteristics of a ladybug and the terms used to identify each part. Throughout the storytelling, students will engage in shared reading. This interactive way of telling the story will allow students to take part in different reading strategies further expanding their fluency and expression. Through modelling, I will demonstrate the skills needed in order to read a story as well as how children can adopt those skills.

Math: Throughout this unit, students will develop math skills such as number sense, recognizing quantities, and the ability to identify/understand size, shapes and patterns. For example, students will examine the ladybugs spots where they will count them, identify the shape and size of the ladybug and their spots, as well as identify any patterns they may notice. In doing so, students will begin to develop mathematical skills they will need in their later years.

Science: Students will engage in numerous science skills through observation and exploration. Students will become familiar with the anatomy of a ladybug, where they will later make connections to their own anatomy. I will teach students about the following aspects of a ladybug: Antennae, head, eyes, pronotum, legs, tibia, femur, tarsus, elytra, and tarsal claw. We will continuously revisit these terms throughout the unit in order to help students recognize them later on. As an extension, students will go outside to act as scientist in looking for ladybugs.

	Art: In this unit, students will explore the arts using colors, fabrics, and a variety of other materials. Students will learn about the color wheel, the materials and the ways in which they are used. Through this learning experience, students will create and design their own ladybugs which will later be displayed throughout the classroom.

Essential Questions	**Enduring Understandings**
Open-ended questions that stimulate thought and inquiry linked to the content of the enduring understanding.	**What do you want students to understand & be able to use several years from now?**
• What is a ladybug? • Why do they have spots? • Do all ladybugs have spots? • Are there different kinds of ladybugs? • Are ladybugs only one color, shape or size? • Where do ladybugs come from? • Where do ladybugs live? • At what time of year do we notice ladybugs? • Are ladybugs male or female? • Why do ladybugs have two sets of wings? • What do ladybugs antennae's do? • How are these insects different from others?	I would like for students to understand and be able to use several years from now… • The reason as to why ladybugs have spots. • The significance of habitats in nature. • The life cycle of a ladybug. • The different body parts and characteristics of a ladybug. • How a ladybug protects itself. • What a ladybugs food source is. • What the different types of ladybugs are.

Assessment Evidence (Stage 2)	
What assessment strategies /tools will help check for understanding?	The strategies used will be as follows: • **Observation**: Throughout the unit, I will observe student's behaviors with regards to the subject and the activities being completed. • **Documentation**: I will record the children's different ideas and thoughts that arise. • **Whole group sharing and discussion**: Throughout the unit, students will take part in whole group sharing and discussions. At multiple occasions, we will gather to discuss the children's findings and any new knowledge they may have obtained. • **Problem-solving:** Students will be required to problem solve through different mathematical activities. • **Unit assessment**: Although there will be ongoing informal assessments throughout the unit, once all of the lessons have been completed, I will conduct a unit assessment in order to gain perspective as to how the activities went. This unit assessment will

	also allow for me to know if students gained the knowledge that I wanted them to learn from the activities. • **Performance assessment**: Throughout the unit, I will assess the ways in which students tackle tasks and the strategies they use in order to complete their work. • **Portfolios**: Throughout the unit, I will place students work within individualized portfolios. This will allow me to track and share progress with the children and their parents and/or guardians.
Performance Task (Overview)	• The children are going to create an art representation of a ladybug using the techniques they have developed with the materials provided. • The students are going to act and think like scientists while learning about the anatomy of a ladybug. • The children will also take on the role of a scientist when exploring for the ladybugs outdoors. While actively participating in this activity, students will have to think about the habitats in which these insects live in and the aspects that allow ladybugs to survive.

Learning Plan (Stage 3)

How will you hook students at the beginning of the unit? (motivational set)

To motivate the students at the beginning of the unit, I introduce them to the topic of ladybugs through a puzzle picture with a game of hangman. The children will have to guess the 8 letters that make up the word "ladybugs". Every time a child guesses a correct letter, they will have the chance to go and flip one of the puzzle pieces displayed on the smart board. As the puzzles pieces are exposed, the image will begin to form a herd of ladybugs. Students will be asked to make observations and predictions about what they believe the topic will be about. This hook is what is going to establish the attitudes and views students take towards this unit.

What events will help students experience and explore the enduring understandings and essential questions in the unit? How will you equip them with needed skills and knowledge? How will you organize and sequence the learning activities to optimize the engagement and achievement of all students?

The students will take part in the following activities in order to experience and explore the understandings and essential questions in the unit: Scientific exploration, critical thinking, active play/role-play, creative inventions, scientific & artistic observations, as well as art representations & projects. Students will explore their environment and actively play/role-play as though they were ladybugs in order to gain an understanding about ladybugs. Through scientific observations, students will learn about the anatomy of ladybugs as well as gain an understanding of ladybugs habitats and life cycle. Students will later have the creative freedom to explore through colors, fabrics and various other materials in order to create an art representation of what they have learnt about this particular insect.

I will equip the students with the needed skills and knowledge through direct instruction, inquiry-based instruction, differentiated instruction: learning stations, graphic organizers, scaffolding through discussion, use of prior knowledge, and visual aids as well as through the integration of technology. Throughout the unit, I will ensure to target these strategies to assure that students are acquiring the information and abilities needed to learn successfully.

In order to organize and sequence the learning activities in a way that optimizes all student's engagement and achievement, I will begin by providing students with the basic information and knowledge needed to understand the topic. The initial introductory lesson will permit students to gain an understanding about the topic we will be covering throughout the unit. As we progress, the lessons will become more complex and focused in order to target the essential questions and enduring understandings for the unit. All of the children are going to be guided in a way that optimizes their learning. Each lesson provides clear instruction and expectations for the activities and build on one another in a way that permit students to revisit all prior knowledge obtained. Organizing the unit in a way that transitions smoothly allows for the teacher to track and evaluate how and if students are grasping the materials. It also gives teachers to make the necessary changes in order to ensure students achievements.

How will you cause students to reflect and rethink? How will you guide them in rehearsing, revising, and refining their work based on your essential questions and enduring understandings?

Students will have the opportunity to reflect and rethink throughout the unit through a series of discussions. Students will be given multiple occasions to discuss what they know and have learnt with their peers in both small groups and large groups. Students will also have the chance to reflect through various learning activities such as: Think-pair-share, 3-2-1, jigsawing, collage, and journaling. These learning strategies will support student's ideas and those shared by their peers.

I will guide students in various ways by asking questions that will help build on their foundational knowledge and knowledge acquired throughout the unit. I will encourage students to think critically and ask questions that will further their understanding. In doing so, I would like for students to construct new information based on their prior knowledge. I will ensure that I am available to answer any questions the children may have and provide the feedback necessary for children to refine their work.

As well, I will emphasize the importance of rehearsing, revising, and refining ones work and the reasons as to why we do so. Many learning resources will be available to students such as a word wall displaying the terms learnt, picture cues, flash cards, and learning centers. Throughout the unit, we will revisit key words and concepts, therefore, it will give students the opportunity of reviewing whether it is on their own or as a class.

How will you help students to exhibit their growing skills, knowledge, and understanding throughout the unit?

I will…

- Scaffold students.
- Observe and document responses received by the students**.**
- Give students the opportunity to share their knowledge with their peers.
- Have student-lead activities.
- have students create a portfolio where they can showcase the work they have completed.
- Give students the opportunity to teach the class any additional information they may have obtained.
- Display the work created by the students and have parents walk around in order to see what their children have learnt and accomplished.

Environment **(What will be added to the environment to support the unit?**	**Conversations** What open ended questions can I ask to learn through conversations that will scaffold children's learning?
In order to support student learning, the environment will contain the following: • Images of lady bugs and aspects that pertain to their habitats. • Various reading materials and picture books related to insects, more specifically ladybugs. • Learning centers with a variety of sensory materials that will allow students to explore the topic. • A smartboard for the introductory activity of the unit. • Scientific materials used for the exploration aspect of the lesson. Items such as lab goggles, magnifying glasses, insect catchers, and leaves will be available for student use. • Art supplies such as paint, felts, paint brushes, card board, construction paper and other materials as needed for the art-based lesson. • A computer (for students to conduct research) • A word wall with the terminology explaining the anatomy of a ladybug. • Recording device – to document the exploration process, observations, and ideas made by students in and outside of the classroom.	• Why is learning about ladybugs important? • What do you know about ladybugs? • What do you know about ladybugs wings? • Are all ladybugs the same?

The environment will be organized in a way that the tools are readily available to students and easy to navigate. The centers will be organized in a way that flows nicely and consistently with the next center.			• Do ladybugs have similarities or differences? • Are ladybugs found all over the world? • What would you like to know about ladybugs?
What resources will you use in the learning experiences to meet the outcomes?	**Outline of planned lessons:**	**Play** What interactions (e.g., environment, conversations) can I offer to maximize the children's opportunities for learning and inquiry?	
I will use the following resources: • Book: *Lucy Ladybug* • Images of ladybugs, their habitats and their anatomy. • Various technology: computer, smartboard. • Art materials – paints, paint brushes, fabrics, plates, different papers, markers, pencil crayons. • Color wheel • Magnifying glass • Rubber gloves • Vocabulary (word wall) – terms will be at an accessible level for the students allowing them to review at any time.	**1.** The initial lesson is an introductory lesson where students will take part in an interactive read-aloud to the book *Lucy Ladybug*. Beforehand, I will ask students what they know about ladybugs and if they are familiar with what family they belong to. After a short discussion, we will read the book as a class. After reading the story, students will have the opportunity to share what they have learnt and any thoughts or ideas they would like to discuss with their peers. Students will take part in different reading strategies which will help with the development of the following lessons. **2.** This second lesson encompasses both mathematics and science-based activities. While acting as scientists, students will have the opportunity to engage in Scientific exploration, critical thinking, active play/role-play, and scientific observations. Prior to exploring their environment, students will learn about the various terminology that define a ladybugs anatomy. Alongside the vocabulary, students will learn about ladybugs habitat as well as their lifecycles. Students will also develop math skills such as number sense, recognizing quantities, and the ability to identify/understand size, shapes and patterns. They will be responsible for observing the ladybugs and applying the math skills mentioned. **3.** In this third lesson, students will be introduced to a variety of art materials	• in order to ensure that children have the opportunity for the best possible learning and inquiry, I will provide a safe environment where children have the freedom to explore, discover, and share with their peers. • The class will contain various learning centers where students can take part in different hands-on activities. • In order to enhance certain lessons, we will take class fieldtrips to places such as the arboretum and the insectarium. This will enable students to take part in hands-on activity and conduct research within different environments. • The classroom will be set up in a way that allows for open spaces. Therefore, children will have the opportunity to not feel restricted to working in one area of the class and will maximize their learning and discovery. • Free play will also be incorporated as students learn best when interacting and engaging in different forms of play. There will be some guided play, where students will take on the role of ladybugs. However, the children will also be given time to explore and play on their own and with peers. • Makerspaces will also be incorporated within the student's environment. These spaces are becoming significantly important in education and are important to incorporate. Makerspaces give students the opportunity to "Do It Yourself". The students will be encouraged to explore and create new ideas of their own while understanding and applying their newfound knowledge. The students will have access to a variety of different materials and will have the freedom to create and design based on their understandings. • As a class, we will explore the outdoor environment in order to gain an understanding of insect's habitats and food sources. This will allow students to observe different environments and the factors that may contribute to insect's cycle of life.	

	where they will explore color, fabric and texture. Students will then be given the opportunity to use their chosen materials to create their own representation of a ladybug. They will have the creative freedom with this art-based project, however, they will be required to make a ladybug but there are not limitations as to what it can look like. The goal of this art piece is for students to discover different materials while learning about this particular insect and incorporating the new information learnt.	

Assess and Reflect (Stage 4)

Does my unit promote lifelong learning, encourage the development of self and community, and engage students?

This unit promotes lifelong learning as children are learning about the lifecycle of ladybugs. Although this unit only covers the lifecycle of one insect, students will be able to apply the knowledge learnt towards other insects, animals, humans and other species they may encounter. Students will learn about the anatomy of a ladybug which will lend to later experiences in learning about human anatomy. Students will gain a less complex understanding but will apply it in their later years and make connections to what they had previously learnt.
Students will be encouraged to make self-discoveries and develop social skills along the way. The lessons in the unit begin as teacher lead activities, however, students are stimulated to explore and make discoveries of their own while interacting with their peers as we progress throughout the modules. Students will also develop skills as to how to interact with their environment and within their community.
Throughout this unit, students are consistently engaged as the lessons require student participation, discovery, exploration, and understanding. The activities of the unit target student learning in unique ways that help students remain motivated and excited to learn.

Do the learning experiences allow learners to use multiple literacies while constructing knowledge, demonstrating social responsibility, and acting autonomously in their world?

Students will be given the chance to explore multiple literacies throughout the unit which will cater to their constructing of knowledge, social responsibility, and their autonomous behaviors in society.

The following literacies will be available for exploration to the students: Books, E-books, websites, films and video clips, infographics, and podcasts. Students will have the chance to evaluate the different literacies and decipher which one(s) benefit their growth and learning to their fullest potential. Providing visual, textual, digital and technological literacies allow for students to experience learning in various way which extend to social responsibility and autonomous behaviors.

Students will demonstrate social responsibility through the multiple literacies by demonstrating what they know and understand via different platforms. Students will be able to share and discuss materials with their peers through these literacies.

In using these literacies, students will also engage in autonomous behaviors where they will be able to conduct research and construct knowledge.

Adaptive Dimension: **Have I made purposeful adjustments to the curriculum content (not outcomes), instructional practices, and/or the learning environment to meet the learning needs of all my students?**	Adjustments to curriculum content have been made in order to meet the learning needs of every student. Multiple strategies have been incorporated in this unit, as every child responds differently to learning approaches. It is the role of the teacher to observe their students in the learning environment and assess the way in which they learn. This will allow teachers to direct their teaching towards

	specific approaches that cater to student's individual needs and target the best possible learning for students. Teachers are responsible for ensuring that all students have a fair opportunity of striving to their full potential. Therefore, this unit is adjusted to target the diverse learners by offering different teaching approaches and learning opportunities. Students will be given the chance to complete certain tasks in ways that they best correspond to. For example, if a child best expresses him/herself best orally, then they will be given the chance to do so rather than in written form with the rest of the class. They will be encouraged to work on all skills, however, will be evaluated in a way that ensures them to be successful. Instructional practices have been made clear and straightforward in order to guide students. I have decided to use a variety of different teaching methods in order to guide student interactions and move students onward in their learning. The learning environment has been made to be a safe and comfortable space which will allow students to learn to their ability. Many tools and resources will be available to cater to the various types of learners (linguistic learners, naturalists, musical/rhythmic learners, kinesthetic learners, visual/spatial learners, logical/mathematical learners, interpersonal learners, and intrapersonal learners). In providing students with the learning opportunities and differentiations, all students will have the chance to flourish alongside one another. The environment will also contain flexible/alternative seating, manipulates, movement opportunities, a relaxation corner, visuals, tactile tools and auditory experiences when necessary.
Instructional Approaches: **Do I use a variety of teacher directed and student centered instructional approaches?**	**Teacher directed instructional approaches** • Direct instruction • Interactive instruction: discussions • Guided inquiry • Observation • Scaffolding **Student centered instructional approaches** • Active learning / Hands-on experiments • Problem-based learning • Project-based learning • Game-based learning • Student lead discussions • Group work (think-pair-share, jigsaw) • Learning centers/Individual activities (3-2-1, journaling, collage) • Peer & self – evaluations
Student Evaluation:	**Formative assessments** • Observations

Have I included formative and summative assessments reflective of student needs and interests based on curricular outcomes?	• Visual representation • Questioning • Graphic organizers • Think-pair-share • Peer & self - assessments **Summative assessments** • Performance tasks to test skills/abilities • Oral presentation • Written products (graphic organizer, journaling, reading comprehension)
Resource Based Learning: **Do the students have access to various resources on an ongoing basis?**	Various resources will be available for students use throughout the year. Students will have access to: • Books & picture books • Technologies • Portfolios- documentations where they will be able to go back and review what they have completed • Posters, a word wall, pictures/diagrams.
Content and Perspectives/Gender Equity/Multicultural Education: **Have I nurtured and promoted diversity while honoring each child's identity?**	Every child enters the classroom with diverse identities, perspectives, and stories. This unit enables students to learn and grow in an environment that honors their individualities. Students will be confronted with various learning experiences and will have the opportunity to address them in ways that empower them as individuals and help them develop various life and educational skills.

Adapted from: Wiggins, Grant and J. McTighe. (1998). *Understanding by Design*, Association for Supervision and Curriculum Development.