

Handwork through the grades in Waldorf Education

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The handwork curriculum weaves through the grades, meeting students developmentally at their intellectual, social and emotional level. It is designed to support the class curriculum and academics. Current research shows a connection between fine motor skills and brain development, and handwork activities such as sewing, knitting, crocheting and cross-stitch challenge students to use both sides of their brain. Other skills reinforced by handwork include eye tracking, spatial awareness, crossing the midline, and numeracy. Eye tracking, which can be as simple as following a stitch from one knitting needle to the other or creating a mirror image pattern on a cross stitch bookmark helps to develop and strengthen reading skills and develop spatial awareness. Math skills are essential to all types of handwork—knitting, crocheting, sewing, and cross stitch. How many stitches did you cast on? Did you have too many or too few? How far apart are your running stitches? How much do you add to this pattern for your seam allowance? Projects require students to follow a pattern, both visually and in their heads.

Practical tasks such as handwork are often connected to the intellectual and creative aspects of a human being. Some have equated “thinking as cosmic knitting.” When you take ideas and put them together to form more complicated thoughts, it is similar to the process of knitting where one thread is pulled up again and again to create a fabric. Natural materials are purposefully used, whether it is wool, cotton, wood or silk, as they bring a sense of warmth to the students’ work and help develop a sense of connection to the living world.

Handwork is rich with social emotional learning. While there are times for working without talking (trying to master a new skill), handwork is a historically social practice. Students sit in groups of 4 around a table, and may talk quietly while working. Students who prefer silence to concentrate can make use of the many tools available: noise-canceling headphones, cardboard dividers (“offices”), or seating in one of the cozy corners. Progress is naturally visible, and students may tend to compare their quality and especially quantity of work to those around them. Handwork is an organic opportunity to learn and practice a growth mindset. Students are encouraged to focus on their learning and work as an ongoing process, and they are encouraged

to develop their own talent and proficiency, not to compare to others. We can look back at the beginning of their project and see that the stitches may not have been as neat or even, and celebrate the improvement as the project progressed, rather than the speed. As students see the visual representation of their own growth, it helps to foster their self esteem and carries this mindset into other subjects.

These simple handwork activities are the foundation for a sense of self-reliance and also create an unconscious pool of knowledge which can be drawn from later in subjects such as physics, geometry, or other areas of math and science.

1st Grade

Very simple knitting, which has a balanced sense of using both hands, is taught in first grade. Basic knitting skills such as casting on, casting off, changing colors, simple increasing and decreasing, hiding ends, and sewing up a project are introduced, refined, and developed during the knitting journey of first and second grade. Students also master how to follow a simple pattern and to keep track of each completed row on their pattern chart.

Handwork helps first graders to come into their physical body, improve finger dexterity (important for writing) and strengthen their will forces. It gives them hands-on, practical practice with numeracy skills. As with all new skills, some children pick knitting up quickly while others work hard to master the skill over many months. The first four projects are knitted as a two-dimensional square, and then sewn and stuffed to produce into a three-dimensional item. The progression of projects is: a gnome (tomten), golden ball, treasure pouch, bunny, and a rainbow scarf which is knitted until it is as tall as the child. Not all students make it through the entire list of projects, which is expected. Completing work and doing their individual best is the goal. The average 1st grade knitter has completed or is working on their treasure pouch by the end of the 1st semester.

In the second half of 1st grade, students become more consistent knitters. They are a little more aware of their physical body, and months of practicing fine motor skills in handwork and in their classrooms have given them more control and stamina. Although a wide range of ability, quality, and quantity of work still exists at this age, during the second half of the year we generally see ease of motion and improvements in tension. Many students can cast on (begin a project) and cast off (end) their knitting without assistance, and are quick to help those who have not yet mastered

that skill. They are able to identify a mistake visually (“this doesn’t look right”) and participate in discovering the mistake and making the necessary repair and adjustment. If a student is found to be struggling more than is typical, the handwork teacher meets with the class teacher to discuss the student’s particular challenges and how scaffolding and support can be implemented for that student.

2nd grade handwork continues strengthening the students’ will forces through knitting. Their projects are longer and more complex, building on the knitting skills they learned in 1st grade. They start the year knitting a rainbow flute case, which will hold their flute or recorder through 5th grade. Students learn how to combine knitting and purling stitches in a multitude of ways to create different patterns, one for each color of the rainbow. Stitches are combined in combinations of 20, 5 and 2, and students need to count to and recognize these groupings. This requires increased concentration and attention to complete each pattern successfully. Students must be able to hold a pattern in their head, follow one on paper and visually identify mistakes in their pattern by comparing their pattern to a sample. Any difficulties in following or visualizing the pattern are discussed with the class teacher so extra support can be given in both the classroom and the handwork room. Some students benefit from the placement of stitch markers to show where the pattern should change as well as frequent check-ins with the teacher.

After completing their flute case, 2nd graders move on to knitting a dragon (approximately two feet long) and then a large gnome, using the stitch combinations they just mastered. Students work at different paces; the goal is to persevere, do our best work and finish each project. While the focus is quality over quantity, the average 2nd grade knitter finishes their flute case by January or February.

3rd grade handwork supports their classroom curriculum in several ways. Every week, 3rd graders have practical arts time, in which they garden, cook, and tend the chickens. In handwork, they use natural materials collected from the garden (madder root, amaranth, elderberries, etc) to dye wool. All of the projects 3rd graders make in handwork are useful objects, from their embroidered pencil pouches to crocheted washcloths, hats and potholders.

Students begin the year with two projects which help strengthen their math skills, pattern recognition and dexterity: Kumihimo (Japanese 8 stranded braiding), and weaving on a simple wooden loom. These projects are rhythmic and predictable, and can be mastered in a short amount of time. Yet, they have enough complexity to keep students interested by making their own choices of color combinations, or stretching themselves to create more complex patterns on

their looms. Each child makes their own Kumihimo disc by dividing a circle into 18 pieces. We begin by equating the circle to a clock and then to a compass. The child must cut slits at 12:00, 6:00, 9:00 and 3:00 (or N, S, E and W) before dividing each section in half and then in half again (can you find NW? How about 3:30?) until they have 16 slits. Then they must measure and cut their yarn and learn the braiding pattern. Once they are self-sufficient at Kumihimo, they move on to weaving.

Each child has their own small wooden loom, and the whole class learns to weave in the basic “under and over” pattern while watching for tension problems or mistakes in the pattern. They learn to change yarn and correct mistakes before trying more advanced techniques such as weaving a picture into their design. Students continue to weave and Kumihimo all year, and these projects can be worked on if they are waiting for help as the class learns to crochet.

In crochet, each hand and finger takes on a different position, which creates a new challenge to overcome but eventually all students triumph in their own way. Whereas the two hands are more balanced in knitting, when crocheting the dominant hand does most of the work. Students begin by crocheting a simple chain, then crochet small projects: a carrot, bracelet and bookmark followed by a washcloth (which is a bit larger). The next project is a hat, which presents a double challenge: crocheting in a circle and following a pattern. The hat is an additional area to strengthen math skills, as the student is crocheting their 6 times tables (each round of the hat increases by six and the student must increase at the proper time and count their stitches upon completing the round). The hat is followed by Granny squares, for which they learn a double crochet stitch and how to follow a complex repetitive pattern. The crochet projects become more complex as we go, but the goal is not speed, but for each child to successfully overcome their own challenges and feel confident in their ability. While everyone has a different pace, the average 3rd grade crocheter is done with their bookmark by the end of January.

In conjunction with their fiber arts block in class, 3rd grade handwork includes a fiber arts block in the spring. We learn about the natural fibers (wool, cotton, flax and silk) used by indigenous peoples all over the world. Students watch a sheep get sheared, then wash, pick and card the wool until it is clean and fluffy. They learn about different natural dyes, the role of mordant and a little about the chemistry involved. 3rd graders dye the wool they cleaned with various natural materials, some of which they harvest from the school garden. They bring the

wool all the way through the cycle, spinning it into yarn using drop spindles. Their yarn is incorporated into their weaving or crochet.

Embroidery and cross-stitch are the hallmarks of 4th grade handwork, often incorporating patterns from the form drawing work they do in class. They create complex, mirror image patterns along both the x and y axis, and weave patterns over and under each other using multiple colors. They begin by embroidering and sewing a needle book, which features at least one embroidered form drawing, before moving on to cross-stitch.

Cross-stitch meets fourth graders developmentally in several ways. Fourth grade is a year of many firsts, as they leave the make-believe world and step into themselves more. They are experiencing the nine year change, a first puberty, where they are developing a sense of themselves separate from their parents. Cross-stitch is a series of individual x's in squares, but when added together create a colorful and beautiful wholeness. It is also an artistic representation of math and geometry which has its own rhythm. In essence, the students are creating art using math.

The fourth graders' first cross stitch project is a simple bookmark to learn the technique. They move on to a more complex design based on Celtic form drawings before designing their own project. Most students are able to look at examples or draw out an idea on graph paper and figure out how to create their desired design by simply stitching x's in boxes, even making curves, letters and detailed pictures. Cross-stitch combines an ability to see and follow patterns, spatial awareness, math and creativity. Their ability and engagement is impressive.

In fourth grade, students also make projects for their Fort Ross Environmental Living field trip. The students use the remaining wool they dyed in 3rd grade to wet-felt a picture or design for the front of their Fort Ross bag. They use their growing sewing and embroidery skills to complete the project. When finished, they sew other projects for the trip including a warm hat, a water bottle holder and mittens.

As students mature, their self-sufficiency develops. This is evidenced in fifth grade handwork. Their first task is to design and sew a larger handwork bag for themselves which they carry with them through 8th grade. The design is entirely of their own imagination, and they use sewing, applique and embroidery skills to carry out their plan. They must focus on proportion, layering, and spatial awareness when designing and sewing their bag. They measure out $\frac{1}{4}$ ' marks in a straight line to sew up the side of their bag.

Once finished, fifth graders return to knitting, but this time in the round, using first circular needles and then five double-pointed needles. Knitting in the round requires increased concentration. They need to read and follow their pattern and learn how to tell if they are knitting from the correct side and how to identify problems like dropped stitches or too many stitches. They need to cast on a large number of stitches and be able to divide them evenly onto four needles. With their improved dexterity, fifth graders use smaller needles and yarn than they did in 1st and 2nd grade. Fifth graders start by knitting a hat. To be able to make their own item of clothing is an important milestone. To create the top of their hat they learn to decrease according to a formula while keeping enough tension so their decreases do not show. Upon completion of the hat, students make fingerless gloves, cowls, socks or other projects knitted in the round.

As students enter the middle school realm, we observe their tendency to group together in “herds”. Not surprisingly, 6th grade handwork is based on the study of herd animals, most specifically, the elephant. The students delve into a study of elephants, reading books about elephants, and watching an elephant documentary. We discuss and record our findings, and pay close attention to the elephants’ form and proportion. Students practice drawing elephants on progressively larger pieces of paper, measuring to determine the ratio between height and length, leg and body height, and head size vs. body size.

When they can accurately draw a proportional form, students draw their own patterns on large paper. First they draw a side-view elephant, and then learn how to draw top and bottom gussets for their elephant. Gussets add width and are what allows you to turn a two-dimensional drawing into a 3-dimensional object. Students add a seam allowance to their pattern pieces before cutting their pieces out of felt. Students are given the freedom to make a realistic colored elephant or a whimsical one.

The second half of the year follows the 6th grade class curriculum, specifically their study of the Middle Ages and the knightly virtues. With their class teacher, students complete knighting projects, such as community and family service, which culminates in a Knighting Ceremony. In handwork, they research, design, sew, applique and embroider a Medieval style coat of arms (herald) which they wear on their Knighting Ceremony tabards. Students choose symbols which are meaningful to them and appropriate to the era. They research different symbols, animals, plants, colors used in Medieval heraldry and their associated meanings to aid

them. They can also use or modify a family crest if they have one.

After the Knighting Ceremony, 6th graders learn how to work with leather, which involves new skills and increased hand strength. They fashion a leather arm guard to use for archery practice.

In 7th grade, students are really starting to reach for their own identity. How do I see myself? How do I want others to see me? All of the hand sewing skills students have learned over the years are called into play in 7th grade when they make a 16" soft doll. Their dolls are made completely by hand, and the students choose the hair, eye, and skin colors they most identify with. As a result, the dolls are as individual as the students. The inner head is constructed of tightly rolled wool placed inside stretchy stockinette tubing and shaped with the aid of strategically placed strings. Constructing the inner head requires students to work with a partner and together create one head and then the other. 7th graders are more naturally focused on themselves as an individual, so it can be challenging to be the one to say "let's work on your head first and then mine." Next, the student chooses a skin tone that speaks to them, and cuts out the pieces for the body parts out of cotton knit fabric. They must learn about grain and stretch in order to cut the pieces out properly and follow written directions closely. All parts of the doll are meticulously hand sewn using small, even back stitches. Previously learned embroidery stitches are used for eyes and mouth, the hair is crocheted (remember 3rd grade?), and clothes are made by hand as well. Students can create various costumes or wardrobes for their doll. The result is a "mini me" as seen through the eyes of the student.

As the oldest students at the school, 8th graders step into the mentor role at the beginning of the year. First, they help their 1st grade buddies make wooden knitting needles, and then help teach their 1st grade buddies how to knit. After years of making everything entirely by hand, 8th graders get to complement their study of the Industrial Revolution by learning to use sewing machines. They learn about the invention of spinning machines, power looms and the sewing machine which took garment making from a cottage industry to the driving force behind large factories and workhouses. Next, they learn the parts of the modern sewing machine and how to use it properly and effectively. This includes how to fill a bobbin, thread the machine, choose the correct settings and troubleshoot problems. They practice sewing straight lines, curves and corners on paper and then on simple projects such as a weighted pillow, hot pack, fabric maze and a full sized pillowcase. 8th graders learn about

fabric grain, directional patterns, selvage edges, how to read a commercial pattern, and how to take measurements properly. Finally, they put all of this knowledge together and sew themselves a pair of pajama bottoms. The 8th grade also works together as a whole class to sew a quilt which they give as a gift to the school before they graduate. After years of hand sewing, they are happy to use the machines!