Child Physical Assessment

Purpose:

This activity will increase nursing knowledge, skills and confidence of the student nurse in assessing the pediatric patient through a better understanding of performing systematic physical assessment of the infant, the young child, the school-age child, and the adolescent resulting in expanded patient care.

Objectives:

At the end of this procedure, the student nurse should be able to:

1. Describe the major components of pediatric health history.
2. Use a systematic appropriate approach for examining child.
3. List common terms used to describe the findings on physical examination.
4. Perform an age appropriate pediatric physical assessment on children from birth through adolescence, using appropriate techniques of physical along with appropriate use of instrumentation and other assessment technologies as needed.
5. Discriminate between normal and abnormal findings of screening physical laboratory data.

Introduction:

Nurses perform physical assessment of infants and children in various settings; clinics, hospitals, schools and homes. The physical examination may be part of a well-child assessment, it may be the admission examination when a child enters the hospital, or it may be part of an initial assessment for home health care. The physical examination provides objective and subjective information about the child. It allows health care providers to determine the child's health status and make judgments about patient's needs for nursing care.

Which time is suitable for physical examination? For infant, should be made as often as necessary.

Schedule of follow up:

1. Each month during the first year of life.
2. Each 3 months during the 2nd & 3rd years.
3. Each 6 months during the 4th & 5th years.
4. Yearly From the 6th year throughout life.

Physical Examination :

Careful Listening :To the information provided by the parent, as well as how it is expressed, and observe behavior during the interaction.

a) Does the parent hesitate or avoid answering certain questions?
b) Pay attention to the parent's attitude or tone of voice when the child's problems are discussed.
c) Be alert to any underlying themes.
d) Observe the parent's nonverbal behavior (posture, gestures, body movements, eye contact, and facial expression) for consistency with the words and tone of voice used.

Subtle nonverbal and verbal cues often indicate that the parent has not provided complete information about the child's problem

DATA TO BE COLLECTED :

Patient Information	▪ Obtain the child's name and nickname, age, sex. The child's birth date, address.
Physiologic Data	Collect information about the child's health problems and diseases chronologically in a format similar to the traditional medical history. ▪ The chief complaint is the child's primary problem or reason for hospital admission or visit to a healthcare setting, stated in the parent's or child's exact words. ▪ The history of the present illness or injury is a detailed description of the current health problem. This includes the onset and sequence of events, characteristics of and changes in symptoms over time, influencing factors, and the current status

	of the problem. ▪ The past history is a more detailed description of the child's prior health problems. It includes the birth history and all major past illnesses and injuries. A detailed and complete birth history is obtained when the child's present problem may be related to the birth history [SEP]. ▪ Identify all major illnesses, including common communicable diseases. Identify major injuries, their cause or mechanism, and their severity. For past surgeries obtain information about the specific type and if the surgery was performed as day surgery or required at least a night of hospitalization. ▪ **The current health status: is a detailed description of the child's typical health status:** 1. Allergies—to food, medication, animals, insect bites, or environmental exposure, and the type of reaction (e.g., respiratory difficulty, rash, hives, itching). 2. Immunizations—review child's record for immunization status, vaccines and dates received, any unexpected reactions. 3. Activities and exercise—physical mobility and limitations, adaptive equipment used; play and/or sports activities. 4. Nutrition—formula-fed or breastfed, if breastfed, for how long, type and amount of daily formula intake; when solid foods were introduced, eating and snacking habits, variety of foods consumed, "junk foods" eaten,

	appetite. 5. Sleep—length and timing of naps and nighttime sleep; nightmares or night terrors, other sleep disturbances; where the child sleeps, and bedtime rituals. ▪ The familial and hereditary diseases summarize the major familial and hereditary diseases in three generations of family members, including the parents, grandparents, aunts, uncles, cousins, child, and siblings.

Measuring Height and Weight

- The child's height and weight are helpful indicators of growth and development.
- Height and weight should be measured and recorded each time the child has a routine physical examination, as well as at other health care visits. These measurements must be charted and compared with norms for the child's age . Plotting the child's growth on a growth chart gives a good indication of the child's health status. This process gives a picture of how the child is progressing and often indicates wellness.
- The charts are indicators, the size of other family members, the child's illnesses, general nutritional status, and developmental milestones also must be considered.
- In a hospital setting, the infant or child should be weighed at the same time each day on the same scales while wearing the same amount of clothing. The infant is weighed nude, lying on an infant scale, or when the infant is big enough to sit, the child can be weighed while sitting.
- The nurse must keep a hand within 1 inch of the child at all times to be ready to protect the child from injury. The scale is covered with a fresh paper towel or clean sheet of paper as a means of infection control
- A child who can stand alone steadily is weighed on platform-type scales. The child should be weighed without shoes. Bed

scales may be used if the child cannot get out of bed. Weights are recorded in grams and kilo- grams or pounds and ounces.

- The standing scales have a useful, adjustable measuring device .
- To measure the height of a child who is not able to stand alone steadily, usually under the age of about 2, place the child flat, with the knees held flat, on an examining table. Measure the child's height by straightening the child's body and measuring from the top of the head to the bottom of the foot.
- Sometimes examining tables have a measuring device mounted along the side of the table. If not, the measurement can be done by making marks on the paper table covering and then measuring between the marks.
- Height is recorded in centimeters or inches according to the practice of the health care facility; the nurse must know which measuring system is used.

Measuring Head Circumference

- The head circumference is measured routinely in children to the age of 2 or 3 years or in any child with a neurologic concern.
- A paper or plastic tape measure is placed around the largest part of the head just above the eyebrows and around the most prominent part of the back of the head.
- This measurement is recorded and plotted on a growth chart kept to monitor the growth of the child's head. During childhood the chest exceeds the head circumference by 2–3 inches.

GENERAL APPRAISAL

Observe the child's general appearance and behavior. The child should appear well nourished and well developed. Infants and young children are often fearful and seek reassurance from their parents. Observe the behavior and tone of voice used by the parent when he or she is talking to the child.

ASSESSING SKIN AND HAIR CHARACTERISTICS

Examination of the skin requires good lighting to detect variations in skin color and to identify lesions. Daylight is preferred when available.

INSPECTION OF THE SKIN	Use gloves to inspect the child's skin for color and the presence of imperfections, elevations, or other lesions. Skin Color The color of the child's skin usually has an even distribution. Check for color variations such as increased or decreased pigmentation, pallor, mottling, bruises, erythema, cyanosis, or jaundice that may be associated with local or generalized conditions. **Skin color terminology:** • Vitiligo : area of depigmentation • Jaundice: a yellow discoloration of the skin best seen in the sclera of the eyes • Cyanosis: blue discoloration of the skin best seen in the mucous membrance of the mouth under the tongue. • Carotenemia :orange color of the skin best seen on the soles of the feet and palms of the hands. • Pallor: loss of skin color. • Erythema: diffusely red Mottling: discolored area of the skin
PALPATION OF THE SKIN :	Palpation of the skin provides a sense of its characteristics: temperature, texture, moistness, and resilience or turgor. To evaluate these characteristics, lightly touch or stroke the skin surface. Temperature Excessively warm skin may indicate the presence of fever or inflammation, whereas abnormally cool skin may be a sign of shock

	or cold exposure. Texture Children have soft, smooth skin over the entire body. Abnormalities in texture are associated with endocrine disorders, chronic irritation, and inflammation. Moistness The child's skin is normally dry to the touch. Excessive sweating without exertion is associated with a fever or with an uncorrected congenital heart defect.
CAPILLARY REFILL AND SMALL-VEIN FILLING TIMES	1. This test is performed at bedside to assess the peripheral perfusion of tissues. Press with your thumb against a bony prominence (sternum or forehead) for 5 seconds to allow the skin to be blanched, and note the time taken for the skin to regain its color. 2. The skin regains its usual pink: color within 3 seconds if the perfusion is good. You can also blanch the finger pulp or nail beds, but ensure that hands are warm. 3. More than 3 seconds is considered prolonged and indicates poor perfusion and shock. Capillary refill is prolonged in severe dehydration, and shock.
INSPECTION OF THE HAIR	• Inspect the scalp hair for color, distribution, and cleanliness. Normally, hair is distributed evenly over the scalp. An unusually low hairline on the neck or forehead may be associated

PALPATION OF THE HAIR	with a congenital disorder such as hypothyroidism. • Children are frequently exposed to head lice. Inspect the individual hair shafts for small nits (lice eggs) that adhere to the hair. None should be present. Palpate the hair shafts for texture. Hair should feel soft or silky with fine or thick shafts.

ASSESSING THE HEAD FOR SKULL CHARACTERISTICS AND FACIAL FEATURES

INSPECTION OF THE HEAD AND FACE	➢ During early childhood the skull's sutures permit expansion for brain growth. ➢ Infants and young children normally have a rounded skull with a prominent occipital area. ➢ Children who were Low birth weight infants often have a flat, elongated skull because the soft skull bones were flattened by the weight of the head early in infancy. Head flattening is also associated with the back lying sleep positions in infants. The head circumference of infants and young children is routinely measured until 3 years of age to ensure that adequate growth for brain development has occurred. A larger than normal head is associated with hydrocephalus, and a smaller than normal head suggests microcephaly.
PALPATION OF THE SKULL	Palpate the skull in infants and young children to assess the sutures and fontanels and to detect soft bones. Sutures Use your finger pads to palpate each suture line.

	The edge of each bone in the suture line can be felt, but normally. The suture lines of the skull are seldom palpated after 2 years of age. Fontanelles • At the intersection of the sutures, palpate the anterior and posterior fontanelles. • The fontanelle should feel flat and firm inside the bony edges. The anterior fontanelle is normally smaller than 5 cm (2 in.) in diameter at 6 months of age and then becomes progressively smaller. It closes between 12 and 18 months of age. The posterior fontanelle closes between 2 and 3 months of age. • A tense fontanelle, bulging above the margin of the skull, is an indication of increased intracranial pressure. A soft fontanelle, sunken below the margin of the skull, is associated with dehydration.

ASSESSING EYE STRUCTURES, FUNCTION, AND VISION:

INSPECTION OF THE EXTERNAL EYE STRUCTURES	The function of the external and internal eye structures and related cranial nerves makes vision possible. Inspect the external eye structures, including the eyeballs, eyelids, and eye muscles. Equipment needed for this examination includes an ophthalmoscope, penlight, small toy. Eye Size and Spacing ➢ Inspect the eyes and surrounding tissues simultaneously when examining facial features .

	➢ The eyes should be the same size but not unusually large or small. Eyelids and Eyelashes ➢ Inspect the eyelids for color, size, position, mobility, and condition of the eyelashes. ➢ Eyelids should be the same color as surrounding facial skin and free of swelling or inflammation along the edges. Eye Color • Inspect the color of each sclera, iris, and bulbar conjunctiva. • The sclera is normally white or ivory in darker-skinned children. For example, yellow sclera indicates jaundice. Pupils • Inspect the pupils for size and shape. • Normally the pupils are round, clear, and equal in size. • To test pupillary response to accommodation, ask the child to look first at a near object (for example, a toy) and then at a distant object (for example, a picture on the wall). • The expected response is pupil constriction with near objects and pupil dilation with distant objects. It is important to detect crossed

INSPECTION OF THE EYE MUSCLES VISION ASSESSMENT	eyes, because if uncorrected it can cause vision impairment. It is possible to assess vision in infants and children by observing their behavior in response to certain maneuvers and during play.

ASSESSING THE EAR STRUCTURES AND HEARING

Equipment needed for this examination includes an otoscope, noisemakers (bell, rattle, tissue paper), and a tuning fork .

INSPECTION OF THE EXTERNAL EAR STRUCTURES	➢ The position and characteristics of the pinna, the external ear, are inspected as a continuation of the head and eye examination. ➢ The pinna is considered “low set” when the top lies completely below an imaginary line drawn through the medial and lateral canthi of the eye toward the ear. ➢ Low-set ears are often associated with congenital renal disorders .

SSESSING THE NOSE AND SINUSES FOR AIRWAY PATENCY AND DISCHARGE

An otoscope with a nasal speculum or a penlight is needed for this examination.

INSPECTION OF THE EXTERNAL	• Examine the external nose characteristics and placement on the face simultaneously with the facial features.

NOSE INSPECTION OF THE SINUSES	• Inspect the external nose for size, shape, symmetry, and midline placement on the face. Nasal Patency ➢ The child's airway must be patent to ensure adequate oxygenation. ➢ To test for nasal patency, occlude one nostril and observe the child's effort to breathe through the open nostril with the mouth closed. ➢ **Nasal flaring**, an effort the child makes to widen the airway, is a sign of respiratory distress and should not be present. If the child struggles to breathe, a nasal obstruction may be present. Nasal obstruction may be caused by a foreign body, congenital defect, dry mucus, discharge. Mucous Membranes and Nasal Septum The mucous membranes should be dark pink and glistening. A film of clear discharge may also be present. Discharge Observe for the presence of nasal discharge, noting if the drainage is from one or both nares. Nasal discharge is not a normal finding unless the child is crying. Sinus infections can occasionally occur in young children. Suspect a sinus problem when the child has a headache or pain and swelling around one or both eyes.

ASSESSING THE MOUTH AND THROAT FOR COLOR, FUNCTION, AND SIGNS OF ABNORMAL CONDITIONS

Equipment needed to examine the mouth and throat includes a tongue blade and penlight.

INSPECTION OF THE MOUTH	Young children often need coaxing and simple explanations before they will cooperate with the mouth and throat examination. Most children readily show their teeth. If the child resists by clenching the teeth, they can be gently separated with a tongue blade. Wear gloves when examining the mouth . Lips Inspect the lips for color, shape, symmetry, moisture, and lesions. The lips are normally symmetric without drying, cracking, or other lesions. Teeth Inspect and count the child's teeth. The timing of tooth eruption is often genetically determined, but there is a regular sequence of tooth eruption. Discolorations on the crown of a tooth may indicate caries. Discolorations on the tooth surface may be associated with some medication. Mouth Odors During inspection of the teeth, be alert to any abnormal odors that may indicate problems such as diabetic ketoacidosis,

	infection, or poor hygiene. Gums ➢ Inspect the gums for color and adherence to the teeth. The gums are normally pink, with a stippled or dotted appearance. ➢ Use a tongue blade to help visualize the gums around the upper and lower molars. Tongue • Inspect the tongue for color, moistness, size, tremors, and lesions. The child's tongue is normally pink and moist, without a coating, and it fits easily into the mouth. • A white adherent coating on an infant's tongue may be caused by thrush, a Candida infection. • Observe the mobility of the tongue. Ask the child to touch the gums above the upper teeth with the tongue. Palate Inspect the hard and soft palate to detect any clefts or masses or an unusually high arch. The palate is normally pink, with a dome shaped arch and no cleft.
INSPECTION OF THE THROAT	➢ Inspect the throat for color, swelling, lesions, and the condition of the tonsils. Ask the child to open the mouth wide and stick out the tongue. ➢ The throat is normally pink without lesions, drainage, or swelling. Tonsils During childhood the tonsils are large in proportion to the size of the pharynx

	because lymphoid tissue grows fastest in early childhood. The tonsils should be pink without exudate. Gag Reflex ➢ Use a tongue blade when you are unable to see the posterior pharynx or need to test the gag reflex. ➢ Do this at the end of the examination because children dislike the gagging sensation.

ASSESSING THE NECK FOR CHARACTERISTICS, RANGE OF MOTION, AND LYMPH NODES

INSPECTION OF THE NECK:	• Inspect the neck for size, symmetry, swelling, and any abnormalities. • A short neck with skin folds is normal for infants. The neck is normally symmetric.
PALPATION OF THE NECK:	Face the child and use your finger pads to simultaneously palpate both sides of the neck for lymph nodes, as well as the trachea and thyroid.

ASSESSING THE CHEST FOR SHAPE, MOVEMENT, RESPIRATORY EFFORT, AND LUNG FUNCTION:

Examination of the chest includes the following procedures: inspecting the size and shape of the chest, palpating chest movement that occurs during respiration, observing he effort of breathing, and auscultating breath sounds. A stethoscope is needed.

INSPECTION OF	• Position the child on the parent's lap or on

THE CHEST	the examining table with all clothing above the waist removed to inspect the chest. • The thoracic muscles and subcutaneous tissue are less developed in children than in adults, so the chest wall is thinner. • In children under 6 - 7 years of age respiratory movement is principally abdominal. In older children, respiration is chiefly thoracic. In either types, the chest and abdomen should raise and fall together. Size and Shape of the Chest ➢ Inspect the chest for any irregularities in shape. A chest is considered rounded when the anteroposterior diameter is approximately equal to the lateral diameter. ➢ If a child over 2 years of age has a rounded chest, a chronic obstructive lung condition such as asthma or cystic fibrosis may be present. Chest Movement and Respiratory Effort ➢ Inspect for simultaneous chest expansion and abdominal rise. Chest movement is normally symmetric bilaterally, rising with inspiration and falling with expiration. ➢ On inspiration the chest and abdomen should rise simultaneously. Asymmetric chest rise is associated with a collapsed lung. ➢ **Retractions**, depression of sections of the chest wall with each inspiration, are seen when the accessory muscles are used for breathing in cases of respiratory distress. Respiratory Rate ➢ Because young children use the diaphragm as the primary breathing muscle, observe or feel the rise and fall of the abdomen to

	count the respiratory rate in children under age 6 years. ➢ The respiratory rate rises in response to excitement, fear, respiratory distress, fever, and other conditions that increase oxygen needs.
PALPATION OF THE CHEST	Use palpation to evaluate chest movement, respiratory effort, deformities of the chest wall, and tactile fremitus. Tactile Fremitus ➢ Crying and talking produce vibrations, known as **tactile fremitus**, that can be palpated on the chest. ➢ Place the palms of your hands on each side of the chest to evaluate the quality and distribution of these vibrations. Ask the child to repeat a series of words or numbers, such as Mickey Mouse or ice cream. As the child repeats the words, move your hands systematically over the anterior and posterior chest, comparing the quality of findings side to side. **Chest expansion** ➢ Chest expansion must be assessed to determine **the movement on each side of the chest.** Both sides should be a**ssessed for symmetry.** Decreased chest expansion is indicated for lung problem such as pneumothorax, pleural effusion, pneumonia and collapsed lung.
AUSCULTATION	Auscultate the chest with a stethoscope to assess the quality and characteristics of breath

OF THE CHEST	sounds, to identify abnormal breath sounds, and to evaluate vocal resonance. Breath Sounds ➢ Evaluate the quality and characteristics of breath sounds over the entire chest, comparing sounds between the sides. ➢ Listen to an entire inspiratory and expiratory phase at each spot on the chest before moving to the next site. ➢ Three types of normal breath sounds are usually heard when the chest is auscultated. 1. *Vesicular breath sounds* are low-pitched, swishing, soft, short expiratory sounds. 2. *Bronchovesicular breath sounds* are medium- pitched, hollow, blowing sounds heard equally on inspiration and expiration in all age groups. 3. *Bronchial/tracheal breath sounds* are hollow and higher pitched than vesicular breath sounds. Breath sounds normally have equal intensity, pitch, and rhythm bilaterally. Absent or diminished breath sounds generally indicate a partial or total obstruction, such as from a foreign body or mucus, that does not permit airflow. Vocal Resonance Auscultate the chest to evaluate how well voice sounds are transmitted. Have the child repeat a series of words, either the same as or different from those used for evaluating tactile fremitus. Abnormal Breath Sounds ➢ Abnormal breath sounds, also called

	adventitious sounds, generally indicate disease. Examples of abnormal breath sounds are Wheezing, crackles, rhonchi, and stroider.
PERCUSSION OF THE CHEST	➢ Percussion is a method sometimes used to assess the resonance of the lungs and the density of underlying organs, such as the heart and liver. The same sequence as that used for auscultation is effective. ➢ Characteristic descriptions of sounds heard with percussion of the chest include tympany, flatness, dullness, resonance, and hyperresonance

ASSESSING THE HEART FOR HEART SOUNDS AND FUNCTION

A stethoscope and sphygmomanometer is needed to assess the heart.

INSPECTION OF THE PRECORDIUM	➢ Begin the heart examination by inspecting the precordium, or anterior chest. ➢ Place the child in a reclining or semi-Fowler's position, either on the parent's lap or on the examining table. ➢ Inspect the shape and symmetry of the anterior chest from the front and side views. The rib cage is normally symmetric. Bulging of the left side of the chest wall may indicate an enlarged heart. Observe for any chest movement associated with the heart's contraction. • The **apical impulse**, sometimes called the point of maximum intensity, is located where the left ventricle taps the chest wall during contraction.

	• The apical impulse can normally be seen in thin children. A heave, an obvious lifting of the chest wall during contraction, may indicate an enlarged heart.
AUSCULTATION OF THE HEART	Auscultation is used to count the apical pulse, to assess the characteristics of the heart sounds, and to detect abnormal heart sounds. Use the bell of the stethoscope to detect these lower pitched sounds. Heart Rate and Rhythm The apical heart rate can be counted at the site of the apical impulse either by palpation or by auscultation. Count the apical rate for 1 minute in infants and in children who have an irregular rhythm. The brachial or radial pulse rate should be the same as the auscultated apical heart rate. Differentiation of Heart Sounds • Heart sounds are due to the closure of the valves and vibration or turbulence of blood produced by that valve closure. Two primary sounds, S_1 and S_2, are heard when the chest is auscultated. • S_1, the first heart sound, is produced by closure of the tricuspid and mitral valves when the ventricular contraction begins. The two valves close almost simultaneously, so only one sound is normally heard. • S_2, the second heart sound, is produced by the closure of the aortic and pulmonic valves. Point of maximum impulses(PMI): It is located Just: Lateral to the left mid-

	clavical line and fourth intercostal space in children younger than 7 years of age. At the left mid-clavicular line and fifth intercostal space near left nipple in children 7 years or above. Third Heart Sound A third heart sound, S_3, is occasionally heard in children as a normal finding. S_3 is caused when blood rushes through the mitral valve and splashes into the left ventricle. It is heard in diastole, just after S_2 Murmurs .

ASSESSING THE ABDOMEN FOR SHAPE, BOWEL SOUNDS, AND UNDERLYING ORGANS

TOPOGRAPHIC LANDMARKS OF THE ABDOMEN

The location of underlying organs and structures of the abdomen must be considered when the abdomen is examined. The abdomen is commonly divided by imaginary lines into quadrants for the purpose of identifying underlying structures .

INSPECTION OF THE ABDOMEN	• Begin the examination of the abdomen by inspecting the shape and contour, condition of the umbilicus and rectus muscle, and abdominal movement. • Inspect the child's abdomen from the front and side with good lighting. • Perform inspection and auscultation before palpation and percussion because touching the abdomen may change the characteristics of bowel sounds. Shape • Inspect the shape of the abdomen to identify an abnormal contour. The child's abdomen is normally symmetric and

	rounded or flat when the child is supine. • A scaphoid or sunken abdomen is abnormal and may indicate dehydration. Umbilicus Observe the newborn's umbilical stump for color, bleeding. Abdominal Movement • Infants and children up to 6 years of age breathe with the diaphragm. • The abdomen rises with inspiration and falls with expiration, simultaneously with the chest rise and fall. When the abdomen does not rise as expected, peritonitis may be present.
AUSCULTATION OF THE ABDOMEN	1. To evaluate bowel sounds, auscultate the abdomen with the diaphragm of the stethoscope. 2. Bowel sounds normally occur every 10 to 30 seconds. Before determining that bowel sounds are absent, auscultate at least 5 minutes in each quadrant. 3. Absence of bowel sounds may indicate peritonitis or a paralytic ileus. Hyperactive bowel sounds may indicate gastroenteritis or a bowel obstruction.
PERCUSSION OF THE ABDOMEN	• Use indirect percussion to evaluate borders and sizes of abdominal organs and masses. • Percussion is performed with the child supine. Different tones are expected when the abdomen is percussed, depending on the underlying structures.
PALPATION	• Both light and deep palpation are used to

OF THE ABDOMEN	examine the abdomen's organs and to detect any masses. • Light palpation evaluates the tenseness of the abdomen (how soft or hard it is), the liver, the presence of any tenderness or masses, and any defects in the abdominal wall. • Deep palpation detects masses, defines their shape and consistency, and identifies tenderness in the abdomen. • To begin palpation, position the child supine with knees flexed. Stand beside the child and place warmed fingertips across the child's abdomen. Light Palpation For light palpation, use a superficial, gentle touch that slightly depresses the abdomen. Usually the abdomen feels soft and no tenderness is detected.

ASSESSING THE GENITAL AND PERINEAL AREAS FOR EXTERNAL STRUCTURAL ABNORMALITIES

PREPARATION OF CHILDREN FOR THE EXAMINATION

Examination of the genitalia and perineal area can cause stress in children because they sense their privacy has been invaded. To make young children feel more secure, position them on the parent's lap with their legs spread apart. Children can also be positioned on the examining table with their knees flexed and the legs spread apart like a frog.

In younger children the genital and perineal examination is performed immediately after assessment of the abdomen. The genitals and perineum may be examined last in older children and adolescents. Equipment needed for this examination includes gloves, lubricant, and a penlight .

Inspection:	• Inspect the external genitalia of girls for color, size, and symmetry of the mons pubis, labia, urethra, and vaginal opening • The labia minora are usually thin and pale in preadolescent girls but become dark pink and moist after puberty. • Inspect the vestibule for lesions. No lesions or signs of inflammation are expected around the urethral or vaginal opening. • Inspect the male genitalia for the structural and pubertal development of the penis, scrotum, and testicles.
INSPECTION OF THE ANUS AND RECTUM	Inspect the anus for sphincter control and any abnormal findings such as inflammation, fissures, or lesions. The external sphincter is usually closed.

ASSESSING THE MUSCULOSKELETAL SYSTEM FOR BONE AND JOINT STRUCTURE, MOVEMENT, AND MUSCLE STRENGTH

INSPECTION OF THE BONES, MUSCLES, AND JOINTS	• Inspect and compare the arms and then the legs for differences in alignment, contour, skin folds, length, and deformities. • The extremities normally have equal length, circumference, and numbers of skin folds bilaterally. Extra skin folds and a larger circumference may indicate a shorter extremity. • Inspect and compare the joints bilaterally for size, discoloration, and ease of voluntary movement.
RANGE OF MOTION AND MUSCLE STRENGTH	Active Range of Motion Observe the child during typical play activities, such as reaching for objects, climbing, and

ASSESSMENT	walking, to assess range of motion of all major joints. Muscle Strength Observe the child's ability to climb onto an examining table, throw a ball, clap the hands, or move around on the bed. The child's ability to perform age-appropriate play activities indicates good muscle tone and strength.
POSTURE AND SPINAL ALIGNMENT	Posture Inspect the child's posture when standing from a front, side, and back view. The shoulders and hips are normally level. The head is held erect without a tilt, and the shoulder contour is symmetric. Spinal Alignment Assess the school-age child and adolescent for scoliosis, a lateral spine curvature. Stand behind the child, observing the height of the shoulders and hips.
INSPECTION OF THE UPPER EXTREMITIES	Arms The alignment of the arms is normally straight, with a minimal angle at the elbows, where the bones articulate. Hands Count the fingers. Inspect the creases on the palmar surface of each hand. Multiple creases across the palm are normal. A single crease that crosses the entire palm of the hand, a simian crease, is associated with Down syndrome Nails

	Inspect the nails for size, shape, and color. Nails are normally convex, smooth, and pink.
INSPECTION OF THE LOWER EXTREMITIES	Hips Assess the hips of newborns and young infants for dislocation or subluxation. First inspect the skin folds on the upper legs. Legs • Inspect the alignment of the legs. After a child is 4 years of age, the alignment of the long bones is straight, with minimal angle at the knees and feet where the bones articulate. • To evaluate the toddler with bowlegs, have the child stand on a firm surface. Measure the distance between the knees when the child's ankles are together. No more than 1.5 in (3.5 cm) between the knees is normal. For assessment of knock-knees. Feet Inspect the feet for alignment, the presence of all toes, and any deformities. The weight-bearing line of the feet is usually in alignment with the legs.
SENSORY FUNCTION	1. To assess sensory function, compare the responses of the body to various types of stimulation. 2. Bilateral equal responses are normal. Loss of sensation may indicate a brain or spinal cord lesion. 3. Withdrawal responses to painful procedures indicate normal sensory function in an infant. Superficial Tactile Sensation Stroke the skin on the lower leg or arm with a cotton ball or a finger while the child's eyes are

	closed. Cooperative children over 2 years of age can normally point to the location touched.
INFANT PRIMITIVE REFLEXES :	Evaluate the movement and posture of newborns and young infants by the Moro, palmar grasp, plantar grasp, placing, stepping, and tonic neck primitive reflexes. These reflexes appear and disappear at expected intervals in the first few months of life as the central nervous system develops. Movements are normally equal bilaterally.