

Course	Agricultural Science I
Unit	Introduction to Animal Reproduction
Lesson	Parturition
Estimated Time	50 minutes
Student Outcome	

Identify the important factors of parturition.

Learning Objectives

1. Describe what parturition is.
2. Identify the physical signs of parturition.
3. Describe the role that hormones play in parturition.
4. List the problems that may occur during parturition.
5. Describe the various malpresentations.
6. List the postpartum management factors for each species.
7. Describe how the birth process for fowl differs from other species.

Grade Level Expectations

Resources, Supplies & Equipment, and Supplemental Information

Resources

1. PowerPoint Slide
 - ☐ PPT 1 – Parturition Presentations of a Calf
2. Activity Sheet
 - ☐ AS 1 – Handling Parturition Difficulties
3. *Introduction to Animal Reproduction (Student Reference)*. University of Missouri-Columbia: Instructional Materials Laboratory, 1996.
4. *Introduction to Animal Reproduction Curriculum Enhancement*. University of Missouri-Columbia: Instructional Materials Laboratory, 2003.

Supplemental Information

1. Internet Sites
 - ☐ Animal Science Publications. MU Extension. University of Missouri-Columbia. Accessed April 12, 2007, from <http://extension.missouri.edu/explore/agguides/ansci/>.
 - ☐ Kvasnicka, B., B. Bruce, and R. Torell. "When Mother Nature Needs a Nudge." *Beef Today*. Accessed June 18, 2007, from <http://www.dqacenter.org/university/moreinfo/rh26.htm>.
 - ☐ Neary, M. and K. Hepworth. *Parturition in Livestock*. Purdue University Extension. Purdue University. Accessed June 18, 2007, from <http://www.ces.purdue.edu/extmedia/AS/AS-561-W.pdf>.
 - ☐ Wright, B. and D. Kenney. *Foaling and Predicting Foaling Time*. Ontario, Canada. Accessed June 18, 2007, from

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- http://www.omafra.gov.on.ca/english/livestock/horses/facts/info_foaling.htm.
Van der Molen, W. H. *Laying an Egg*. Accessed June 18, 2007, from
<http://www.afn.org/~poultry/egghen.htm>.
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Interest Approach



Ask some of the students who have seen a birth to describe what happens. If possible, include a description of a problem birth, comparing it to a normal birth. Explain what happens in the female reproductive tract during birth, relating the information to their examples.

Communicate the Learning Objectives


1. Describe what parturition is.
2. Identify the physical signs of parturition.
3. Describe the role that hormones play in parturition.
4. List the problems that may occur during parturition.
5. Describe the various malpresentations.
6. List the postpartum management factors for each species.
7. Describe how the birth process for fowl differs from other species.

Instructor Directions	Content Outline
Objective 1 <i>Ask students what parturition is. Discuss what occurs within the reproductive tract during parturition.</i>	Describe what parturition is. <ol style="list-style-type: none">1. Parturition is the act of giving birth; it involves hormones and mechanical factors.2. Contractions occur to move the fetus out of the body. Labor involves the dilation of the cervix and the passage of the fetus and the placenta through the birth canal and out of the body through the vulva.
Objective 2 <i>Ask what some of the physical signs of parturition are. Describe the signs of parturition.</i>	Identify the physical signs of parturition. Cow <ol style="list-style-type: none">1. Swollen udder2. Sunken appearance to hips or head of tail3. Enlarged or dropped abdominal area4. Reddened and swollen vulva5. Separation from the herd6. Swollen and leaking teats7. Increased mucus discharge8. Nervousness9. Restless switching back and forth from a standing to a resting position10. Appearance of water bag from the vulva Sow <ol style="list-style-type: none">1. Enlarged abdominal area2. Restlessness3. Attempts to build a nest

Instructor Directions	Content Outline
	<ol style="list-style-type: none"> 4. Swollen vulva 5. Swelling of teats <p>Ewe</p> <ol style="list-style-type: none"> 1. Swollen teats 2. Swollen, slackened vulva 3. Mucus discharge from vulva 4. Restless shifting of position from standing to lying and back <p>Mare</p> <ol style="list-style-type: none"> 1. Swollen udder 2. Shrunken at hips 3. Dropped abdomen 4. Swollen teats 5. Waxing and leaking of teats 6. Swollen, relaxed vulva 7. Separation from other horses 8. Raised tail 9. Frequent urination 10. Excessive sweating 11. Restless changing of position 12. Breaking of water bag <p>Bitch</p> <ol style="list-style-type: none"> 1. Refuses meals 2. Temperature slightly below normal 3. Vomiting 4. Mucus discharge from vulva <p>Doe</p> <ol style="list-style-type: none"> 1. Pulling of fur to line nest 2. Loss of appetite 3. Nervous and excitable
<p>Objective 3</p> <p><i>Identify the hormones involved in parturition and the role they play during birth.</i></p>	<p>Describe the role that hormones play in parturition.</p> <ol style="list-style-type: none"> 1. Parturition begins with decreasing progesterone levels. 2. Estrogen, oxytocin, and relaxin levels increase. 3. Relaxin is produced by the corpus luteum to relax the pelvic muscles, cartilage, and ligaments. 4. Estrogen causes the birth canal to open. 5. Oxytocin from the pituitary, combined with estrogen, causes contractions.

Instructor Directions	Content Outline
	<p>6. Prolactin is secreted by the anterior pituitary before the birth to trigger milk production.</p>
<p>Objective 4</p> <p><i>Ask students what problems may arise during parturition. Discuss different circumstances that may develop into problems.</i></p>	<p>List the problems that may occur during parturition.</p> <p>Large fetus</p> <p>Small pelvic opening</p> <p>Breeding selection</p> <ol style="list-style-type: none"> 1. Large male of a particular breed is bred to a small female of the same breed 2. Male of a large breed is bred to a female of a smaller breed <p>Young mother</p> <p>Torn cervix, vagina, and vulva</p> <p>Prolapse</p> <p>Abnormal fetal position or presentation</p> <p>Uncontrollable fetal bleeding</p> <p>Infection to the mother or newborn from the birthing process</p>
<p>Objective 5</p> <p><i>Ask students to describe the normal presentation of a fetus. Discuss the various malpresentations. Use PPt 1 to illustrate different presentations. Have students complete AS 1 to practice their knowledge.</i></p> <p> PPt 1 – Parturition Presentations of a Calf</p> <p> AS 1 – Handling Parturition Difficulties</p>	<p>Describe the various malpresentations.</p> <p>Ideal presentation for cattle, sheep, horses, dogs, and rabbits - head between the front legs, which leave the birth canal first; fetal pigs - no particular orientation for the birth process</p> <p>Malpresentations</p> <ol style="list-style-type: none"> 1. Backward with hind legs extended 2. Backward with legs retained 3. One or both forefeet retained 4. Head bent backward 5. Upside down 6. Backward and upside down
<p>Objective 6</p>	<p>List the postpartum management factors for each species.</p>

Instructor Directions	Content Outline
<p><i>Ask students to define postpartum management. Discuss the factors involved in postpartum management for the mother and the newborn for each species.</i></p>	<p>Cattle</p> <ol style="list-style-type: none"> 1. Check that the calf is breathing properly. 2. If the mother does not dry the calf by licking, dry it with a cloth. 3. Ensure that the calf nurses. Hand feeding may be necessary. 4. Reduce navel infections by dipping the navel in iodine. 5. The calf should be identified with an ear tag. 6. Make sure the cow has expelled the afterbirth 7. Check for signs of milk fever. <p>Swine</p> <ol style="list-style-type: none"> 1. Check the newborn's breathing. 2. Dry the piglet with a cloth. 3. Make sure the piglet nurses. 4. Remove the umbilical cord. 5. Dip the navel in iodine. 6. Clip the needle teeth of the piglet with side cutters to protect the mother's udder. 7. Dock the piglet's tail. 8. Make sure the afterbirth is expelled. 9. Notch the ears for identification. <p>Sheep</p> <ol style="list-style-type: none"> 1. Check the lamb's respiration. 2. Place the lamb and the mother in a clean pen. 3. Dry the lamb. 4. Warm the lamb. Use heat lamps or warm water if necessary. 5. Make sure the lamb feeds. 6. Cut the navel cord. 7. Use iodine on the navel. 8. Make sure the afterbirth is expelled. 9. Check for signs of milk fever. <p>Horses</p> <ol style="list-style-type: none"> 1. Check the respiration of the foal. 2. Make sure the foal nurses. 3. Cut the navel cord with a clean, dull scissors if it has not broken in five minutes. 4. Dip the navel in iodine. 5. Make sure the afterbirth is expelled within three

Instructor Directions	Content Outline
	<p>hours. If not, call a veterinarian.</p> <ol style="list-style-type: none"> 6. Examine the afterbirth carefully to make sure the entire placenta is expelled. 7. Make sure that the foal has a bowel movement in the first 24 hours. <p>Dogs</p> <ol style="list-style-type: none"> 1. Check the whelp's breathing. 2. Dry the whelp. 3. Ensure that it nurses. 4. Dip the navel in iodine. 5. Make sure the afterbirth is expelled. 6. Check the bitch for eclampsia. <p>Rabbits</p> <ol style="list-style-type: none"> 1. Check for and remove dead newborns. 2. Remove any afterbirth. 3. Check that the rabbits are nursing. 4. Make sure the nest is warm, well-drained, and well ventilated.
<p>Objective 7</p> <p><i>Discuss the differences between the birth processes of fowl and mammals.</i></p>	<p>Describe how the birth process for fowl differs from other species.</p> <p>Hatching - Hatching is breaking out of the egg through the shell. To ensure hatchability, temperature, humidity, and air velocity around developing eggs must be monitored.</p> <p>Proper hatching position - The chick lies on its side along the longest axis of the egg, facing the egg's large end, with its head under its right wing; variations are malpresentations.</p> <p>Care must be provided after hatching.</p> <ol style="list-style-type: none"> 1. Provide proper temperature in the brooder after hatching. 2. Use a brooder guard the first few days to ensure warmth. 3. Provide adequate humidity and space. 4. Control lighting. 5. Check water and feed for consumption.
<p>Application:</p> <p> AS 1 – Handling</p>	<p>Answers to AS 1</p> <ol style="list-style-type: none"> 1. Abnormal - Calf has forefoot retained. Pull it forward

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Parturition Difficulties	<p>for the calf to exit the birth canal in the normal position.</p> <ol style="list-style-type: none"> 2. Normal - No assistance needed. 3. Abnormal - Head is bent backward. Assist by pushing the fetus back into the uterus and positioning the head between the legs. Pull the legs forward to exit the birth canal. 4. Abnormal - Calf is backward with feet retained. Assist by straightening the hind legs to enter the birth canal. Quickly deliver the calf backward. <p>Other activities Have a veterinarian speak to the class about the birthing process.</p>
Closure/Summary	<p>Parturition is the process of giving birth; it involves both mechanical factors and special hormones. It is important to be able to recognize the physical signs of parturition, as well as problems during birth. A knowledge of proper postpartum care is also vital. Knowledge in each of these areas will help the producer ensure the survival and health of both mother and newborn.</p>
Evaluation: Quiz	<p>Answers:</p> <ol style="list-style-type: none"> 1. c 2. c 3. d 4. b 5. a 6. b 7. a 8. The act of giving birth 9. The answer should include four of the following: swollen udder, sunken appearance at hips or head of tail, enlarged and dropped abdominal area, reddened and swollen vulva, seeking of a spot separate from the herd, swollen and leaking teats, mucus discharge, nervousness and restless shifting, and water bag protruding from the vulva. 10. The fetus moves from the uterus through the birth canal, which includes the cervix and the vagina, and out of the body through the vulva. 11. The embryo lies on its side along the egg's longest axis. The head is tucked under the right wing and faces the

Instructor Directions	Content Outline
	<p>large end of the egg.</p> <p>12. Abnormal</p> <p>13. Normal</p> <p>14. Abnormal</p> <p>15. Abnormal</p> <p>16. Abnormal</p>